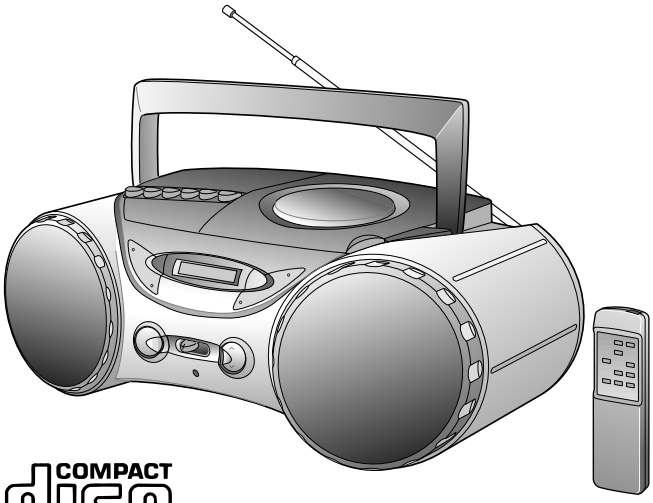
SHARP SERVICE MANUAL

No. S2014QTCD250/



COMPACT disc DIGITAL AUDIO

QT-CD250

• In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified should be used.

CONTENTS

Page

IMPORTANT SERVICE NOTEST (FOR U.S.A. ONLY) 2
SPECIFICATIONS 2
NAMES OF PARTS 3
OPERATION MANUAL 4
DISASSEMBLY 5
REMOVING AND REINSTALLING THE MAIN PARTS 5
ADJUSTMENT 7
NOTES ON SCHEMATIC DIAGRAM 11
TYPES OF TRANSISTOR 11
SCHEMATIC DIAGRAM 12
WIRING SIDE OF P.W.BOARD 14
WAVEFORMS OF CD CIRCUIT 16
TROUBLESHOOTING (CD SECTION) 17
FUNCTION TABLE OF IC 21
PARTS GUIDE/EXPLODED VIEW
PACKING OF THE SET (FOR U.S.A. ONLY)

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT, PLEASE REFER TO THE OPERATION MANUAL.

IMPORTANT SERVICE NOTES (FOR U.S.A. ONLY)

BEFORE RETURNING THE AUDIO PRODUCT

(Fire & Shock Hazard)

Before returning the audio product to the user, perform the following safety checks.

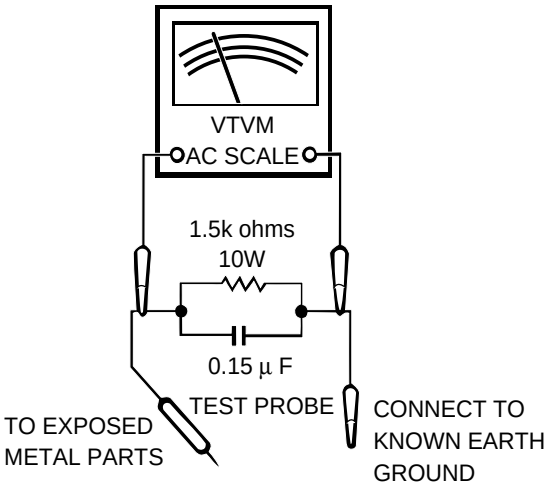
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the audio product.
2. Inspect all protective devices such as insulating materials, cabinet, terminal board, adjustment and compartment covers or shields, mechanical insulators etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

* Plug the AC line cord directly into a 120 volt AC outlet.

* Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15μF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as conduit or electrical ground connected to earth ground.

* Use a VTVM or VOM with 1000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor (See diagram).

* Connect the resistor connection to all exposed metal parts having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.



All check must be repeated with the AC line cord plug connection reversed.

Any reading of 0.3 volt RMS (this corresponds to 0.2 milliamp. AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the audio product to the owner.

SPECIFICATIONS

● General

Power source: AC 120 V, 60 Hz
DC 9 V ["D" size (UM/SUM-1, R20 or HP-2) battery × 6]
DC 4.5 V ["AA" size (UM/SUM-3, R6 or HP-7) battery × 3 for backup memory]

Power consumption: 12 W

Output power: FTC; 2.0 W min. RMS per channel into 4 ohms from 150 Hz to 20 kHz, with no more than 10 % total harmonic distortion.
RMS; 2.3 W/CH
(DC operation, 10 % T.H.D.)

Speakers: 4" (10 cm) full-range speaker x 2

Output terminals: Headphones; 16-50 ohms (recommended; 32 ohms)

Dimensions: Width; 15-3/4" (400 mm)
Height; 6-1/4" (158 mm)
Depth; 8-3/8" (212 mm)

Weight: 6.0 lbs. (2.7 kg) without batteries

● Compact disc player

Type: Compact disc

Signal readout: Non-contact, 3-beam semi-conductor laser pickup

Audio channels: 2

Quantization: 16-bit linear quantization

Filter: 8-times oversampling digital filter

D/A converter: 1-bit D/A converter

Wow and flutter: Unmeasurable
(less than 0.001% W. peak)

● Radio

Frequency range: FM; 87.5 - 108 MHz
AM; 530 - 1,720 kHz

● Tape recorder

Frequency response: 50 - 14,000 Hz (Normal tape)

Signal/noise ratio: 50 dB

Wow and flutter: 0.25 % (WRMS)

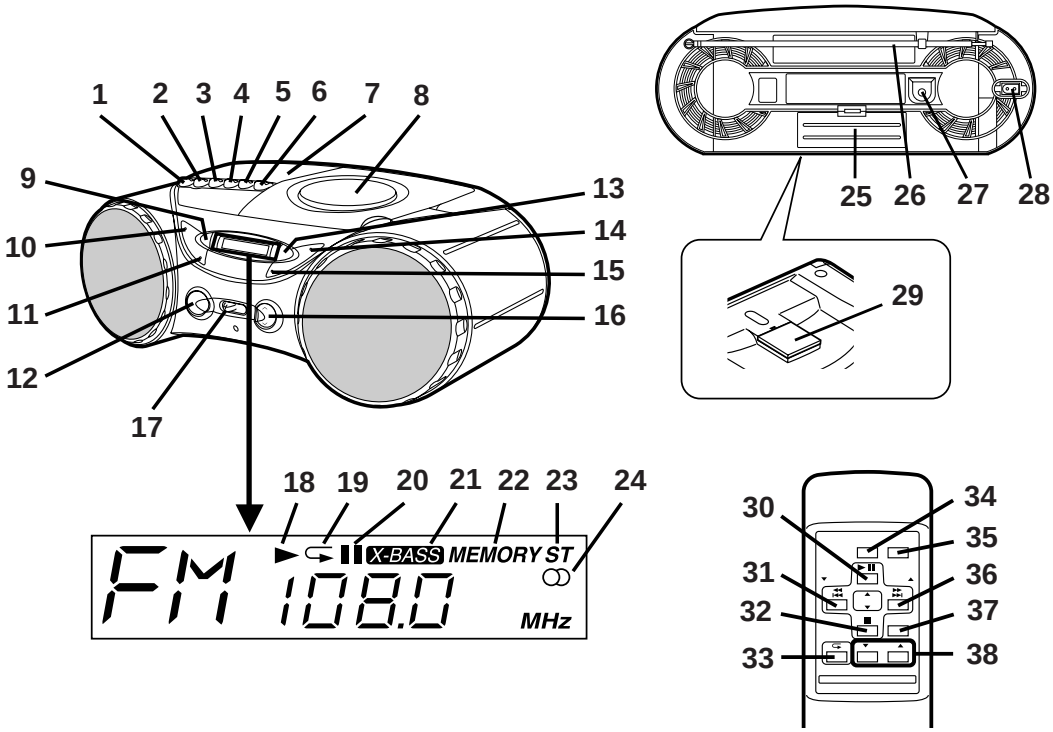
Motor: DC 9 V electric governor

Bias system: AC bias

Erase system: Magnet erase

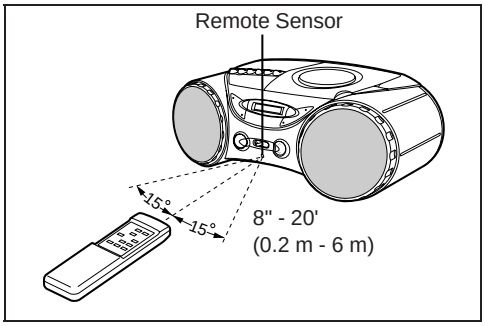
Specifications for this model are subject to change without prior notice.

NAMES OF PARTS



1. **(TAPE) Record Button**
2. **(TAPE) Play Button**
3. **(TAPE) Rewind Button**
4. **(TAPE) Fast Forward Button**
5. **(TAPE) Stop/Eject Button**
6. **(TAPE) Pause Button**
7. **Cassette Compartment**
8. **CD Compartment**
9. **(CD) Stop Button**
   (TUNER) Tuning Down Button
10. **(CD) Repeat Button**
    (TUNER) Band Selector Button
11. **(TUNER) Preset Memory Button**
12. **Extra Bass Button**
13. **(CD) Play/Pause Button**
    (TUNER) Tuning Up Button
14. **(CD) Track Up/Cue Button**
    (TUNER) Preset Up Button
15. **(CD) Track Down/Review Button**
    (TUNER) Preset Down Button
16. **Volume Up/Down Buttons**
17. **Power/Function Switch**
18. **(CD) Play Indicator**
19. **(CD) Repeat Indicator**
20. **(CD) Pause Indicator**
21. **Extra Bass Indicator**
22. **(TUNER) Memory Indicator**
23. **(TUNER) FM Stereo Mode Indicator**
24. **(TUNER) FM Stereo Indicator**
25. **Battery Compartment**
26. **FM Telescopic Rod Antenna**
27. **Headphone Jack**
28. **AC Power Input Jack**
29. **Backup Memory Battery Compartment**
30. **(CD) Play/Pause Button**
    (TUNER) Tuning Up Button
31. **(CD) Track Down/Review Button**
    (TUNER) Preset Down Button
32. **(CD) Stop Button**
    (TUNER) Tuning Down Button
33. **(CD) Repeat Button**
    (TUNER) Band Selector Button
34. **(TUNER) Memory Button**
35. **(TUNER) Clear Button**
36. **(CD) Track Up/Cue Button**
    (TUNER) Preset Up Button
37. **Extra Bass Button**
38. **Volume Up/Down Buttons**

REMOTE CONTROL



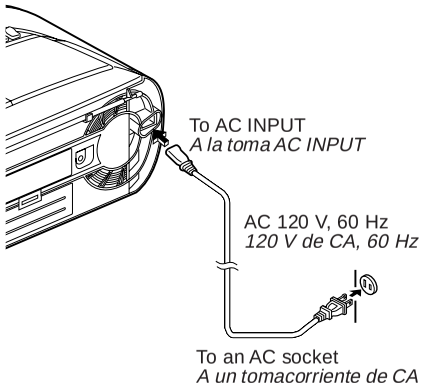
Notes:

- Replace the batteries if the operating distance is reduced or if the operation becomes erratic.
- Periodically clean the transmitter LED on the remote control and the sensor on the main unit with a soft cloth.
- Exposing the sensor on the main unit to strong light may interfere with operation. Change the lighting or the direction of the unit.
- Keep the remote control away from moisture, excessive heat, shock, and vibrations.

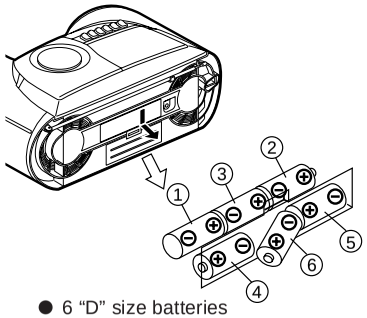
Quick Guide / *Guía rápida*

1 Preparation for use / *Preparación para su uso*

■ **AC power**
■ ***Funccionamiento con corriente alterna***

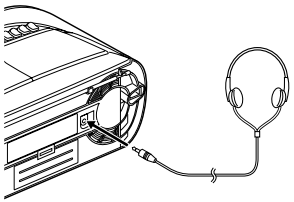


■ **Battery power**
■ ***Funccionamiento con pilas***

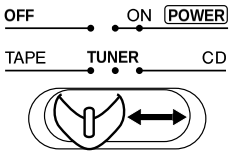


- 6 “D” size batteries (UM/SUM-1, R20, HP-2 or similar)
- *6 pilas del tamaño “D” (UM/SUM-1,R20,HP-2 o similares)*
- Batteries are not included.
- *Las pians no están incluidas.*

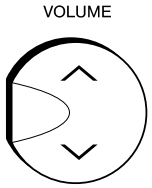
■ **Headphones**
■ ***Auriculares***



■ **Turning the power ON and to OFF**
■ ***Conexión(ON) y desconexión(OFF) de la alimentación***

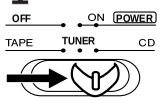


■ **Volume control**
■ ***Control del volumen***



2 Listening to a CD / *Audictión de discos CD*

1



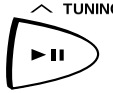
2

3

- Label side up.
- *Con el lado de la etiqueta encarada hacia arriba.*

4

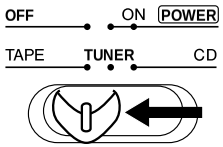
5



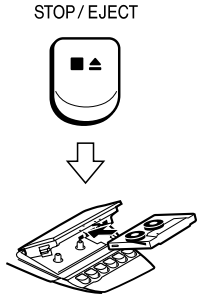
To stop the playback
Press the ■ button.
Para detener la reproducción
Pulse el botón ■ .

3 Listening to a tape / *Audictión de una cinta*

1



2

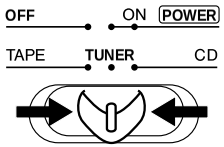


3

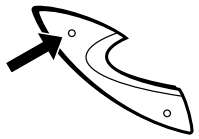
To stop the playback
Press the ■⏏button.
Para detener la reproducción
Pulse el botón ■⏏

4 Listening to the radio / *Audictión de la radio*

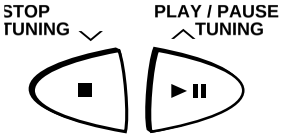
1



2

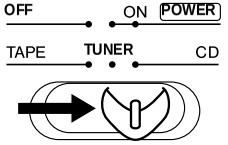


3



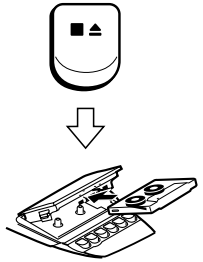
5 Recording from CDs / *Grabaciones de discos CD*

1



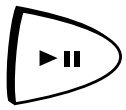
- Load the disc to be recorded.
- *Introduzca el disco que va a grabar.*

2 3



RECORD

4



To stop the recording
Press the ■⏏button.
Para detener la grabación
Pulse el botón ■⏏

DISASSEMBLY

Caution on Disassembly
Follow the below-mentioned notes when disassembling the unit and reassembling it, to keep it safe and ensure excellent performance:
1. Take cassette tape and compact disc out of the unit.
2. Be sure to remove the power supply plug from the wall outlet before starting to disassemble the unit.
3. Take off nylon bands or wire holders where they need to be removed when disassembling the unit. After servicing the unit, be sure to rearrange the leads where they were before disassembling.
4. Take sufficient care on static electricity of integrated circuits and other circuits when servicing.

STEP	REMOVAL	PROCEDURE	FIGURE
1	Top Cabinet/ Front Cabinet	1. Screw ..... (A1) x7 2. Socket ..... (A2) x1 3. Screw ..... (A3) x1	5-1
2	Power PWB/ Terminal PWB	1. Screw ..... (B1) x2 2. Hook ..... (B2) x2 3. Socket ..... (B3) x1 4. Hook ..... (B4) x2	5-2
3	Switch PWB	1. Screw ..... (C1) x2 2. Socket ..... (C2) x1 3. Hook ..... (C3) x2 4. Screw ..... (C4) x4	5-2
4	Main PWB/ CD Control PWB (Note)	1. Socket ..... (D1) x1 2. Screw ..... (D2) x7 3. Screw ..... (D3) x1 4. Solder ..... (D4) x3 5. Socket ..... (D5) x3 6. Screw ..... (D6) x6 7. Hook ..... (D7) x2	5-2 5-3
5	CD Mechanism	1. Screw ..... (E1) x3	5-3
6	Tape Mechanism	1. Screw ..... (F1) x4	5-3

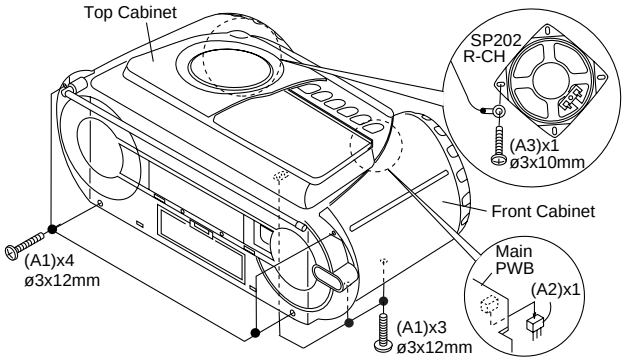


Figure 5-1

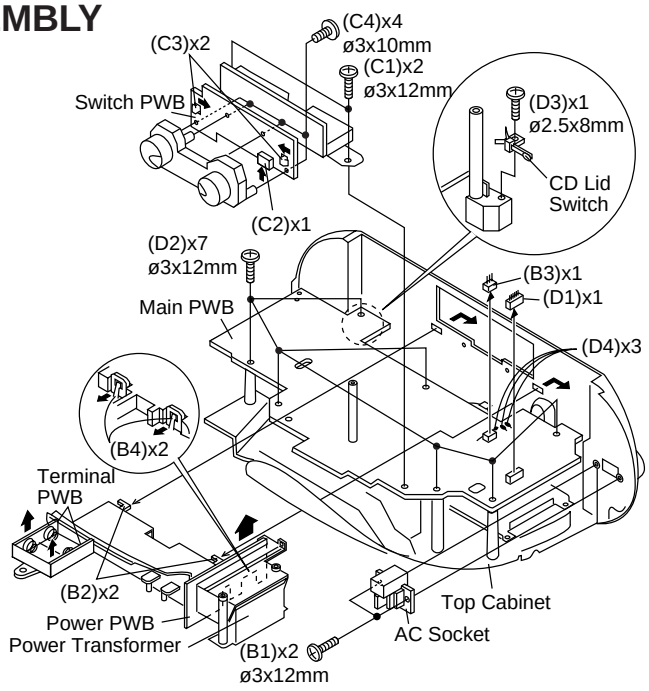


Figure 5-2

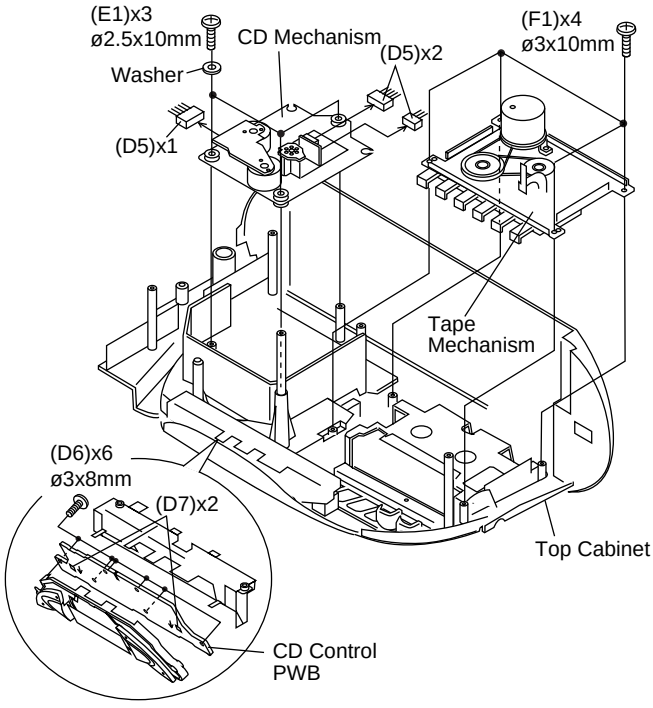


Figure 5-3

REMOVING AND REINSTALLING THE MAIN PARTS

CD MECHANISM SECTION

Perform steps 1 to 4 of the disassembly method to remove the CD mechanism.

How to remove the pickup (See Fig. 5-4.)

1. Remove the screws (A1) x 2 pcs., to remove the shaft (A2) x1 pc.
2. Remove the stop washer (A3) x1 pc., to remove the gear (A4) x 1 pc.
3. Remove the pickup.

Note : (Figure 5-3 and Figure 5-4)
After removing the connector for the optical pickup from the connector, wrap the conductive aluminium foil around the front end of connector to protect the optical pickup from electrostatic damage.

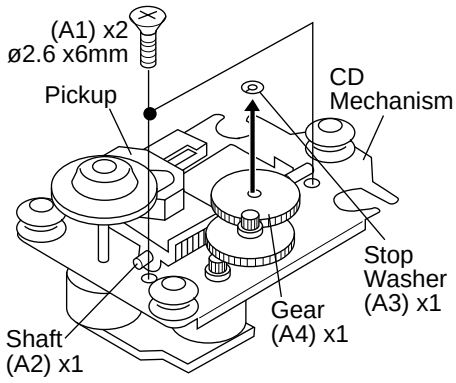


Figure 5-4

TAPE MECHANISM SECTION

Perform steps 1 to 6 of the disassembly method to remove the tape mechanism. (See page 5.)

How to remove the record / playback and erase heads (See Fig. 6-1.)

1. Remove the screws (A1) x 2 pcs., to remove the record/ playback head.
2. Remove the hooks (A2) x 2 pcs., toward the center position as shown in Fig. 6-1. and then extract the erase head upward.

Note:

After replacing the heads and performing the azimuth adjustment, be sure to apply screwlock.

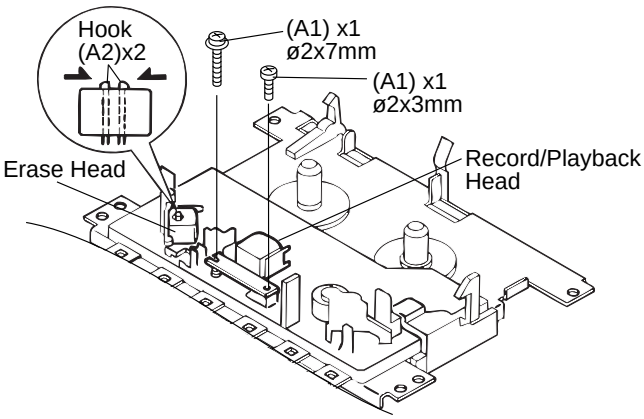


Figure 6-1

How to remove the pinch roller (See Fig. 6-2.)

1. Carefully bend the pinch roller pawl in the direction of the arrow **<A>**, and remove the pinch roller (B1) upwards.

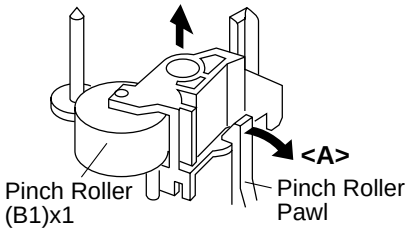


Figure 6-2

How to remove the belts (See Fig. 6-3.)

1. Remove the main belt (C1) x 1 pc., from the motor pulley.
2. Remove the FF/REW belt (C2) x 1 pc., from the REW/FF roller.
3. Put on the belts in the reverse order of removal.

Note:

When putting on the belt, ascertain that the belt is not twisted, and clean it.

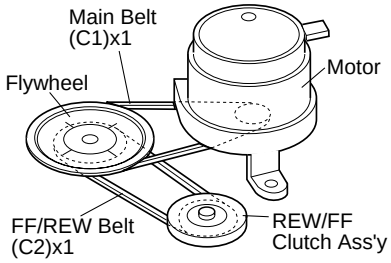


Figure 6-3

How to remove the motor (See Figs. 6-4.)

1. Remove the mainbelt.
2. Remove the screw (D1) x 1 pc., to remove the motor mount.
3. Remove the screws (D2) x 2 pcs., to remove the motor.

Note:

When mounting the motor, pay attention to the motor mounting angle.

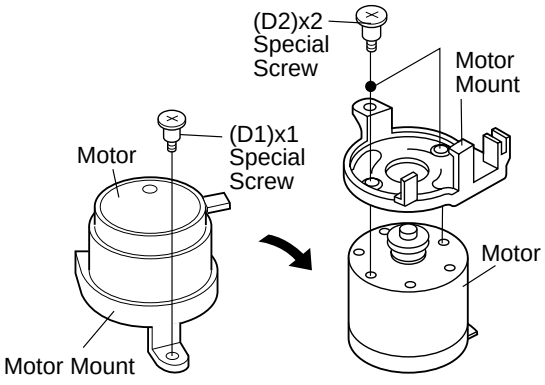


Figure 6-4

How to remove the flywheel (See Fig. 6-5.)

1. Remove the belt.
2. Remove the stop washer (E1) x 1 pc., with a small precision screwdriver to extract the flywheel from the capstan metal.

Note:

When the stop washer is deformed or damaged, replace it with a new one.

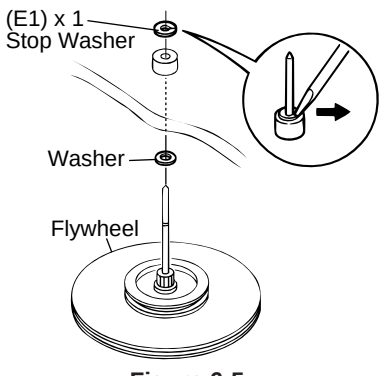


Figure 6-5

How to reinstall the parts

Install each part in the reverse order of the removal with care.

ADJUSTMENT

MECHANISM SECTION

• Driving Force Check

Torque Meter	Specified Value
PLAY: TW-2412	Over 120 g

• Torque Check

Torque Meter	Specified Value
Play: TW-2111	25 to 65 g.cm
Fast Forward: TW-2231	60 to 130 g.cm
Rewind: TW-2231	60 to 130 g.cm

• Head Azimuth

Torque Meter	Specified Value
MTT-114	Output: Speaker Terminal (CNP201 Load resistance: 4 ohms)

• Tape Speed

Test Tape	Adjusting Point	Specified Value	Instrument Connection
MTT-111	Variable resistor in motor. (M601)	3,000 ± 90 Hz	Output: Speaker Teaminal (CNP201 Load resistance: 4 ohms)

TAPE SECTION

Position of each switch or control	
Volume control Function switch X-BASS	Max Tape/Power Off On

• Bias Oscillation

Adjustment Point	Specified Value	Instrument Connection
L301	82 kHz ± 6 kHz - 6 kHz	Pin 2 of CNP201

• Playback Amplifier Sensitivity Check

Test Tape	Specified Value	Instrument Connection
MTT-118	1.1 V ± 3 dB	Speaker Terminal (Load resistance: 4 ohms)

TUNER SECTION

fL: Low-range frequency
fH: High-range frequency

• FM RF

Signal generator: 1 kHz, 75 kHz dev., FM modulated

Test Stage	Frequency	Frequency Display	Serring/ Adjusting Point	Instrument Connection
FM Band Coverage	—	87.5 MHz	(fL): L2 1.7 V ± 0.05V	*1
FM RF	98.0 MHz (10-30 dB)	98.0 MHz	L1	*2

*1. Input: Antenna, Output: TP1
*2. Input: Antenna, Output: Speaker terminal

• AM IF/RF

Signal generator: 400 Hz, 30%, AM modulated

Test Stage	Frequency	Frequency Display	Setting/ Adjusting Parts	Instrument Connection
AM IF	450 kHz	1,720 kHz	T3	*1
AM Band Coverage	—	530 kHz	(fL): L4 1.0 ±0.05V	*3
AM Tracking	600 kHz 1,400 kHz	600 kHz 1,400 kHz	(fL): L3 (fH): TC1	*2

*1. Input: Antenna, Output: Pin 16 of IC1
*2. Input: Antenna, Output: Speaker Terminal
*3. Input: Input is not connected, Output: TP1

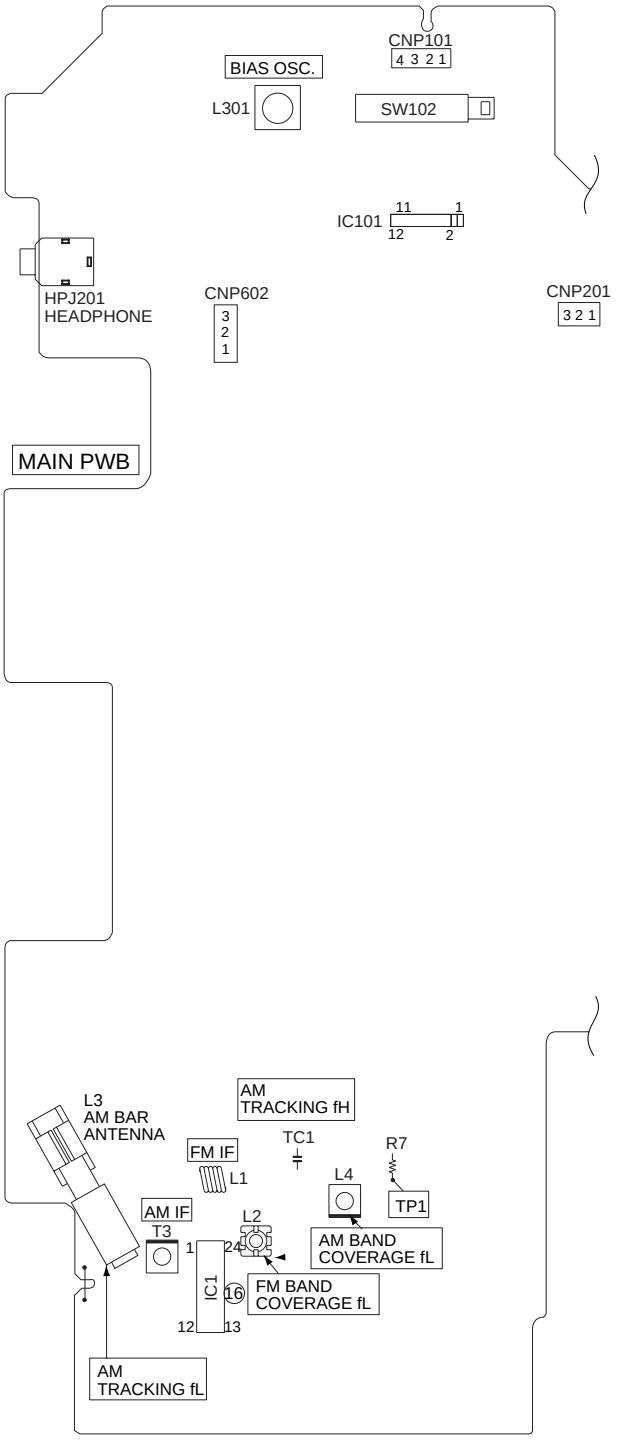
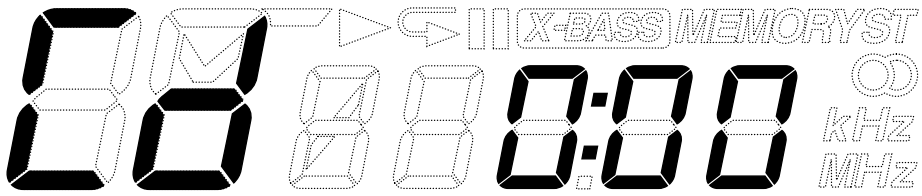


Figure 7 ADJUSTMENT POINTS

QT-CD250

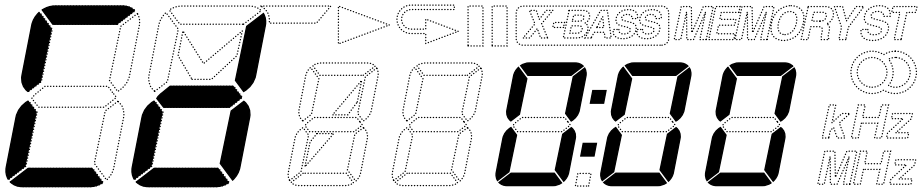
A. CD TEST MODE

Set the function switch to "CD" when pressing the "REVIEW(PRESET DOWN)" button together with "STOP(TUNING DOWN)" button.

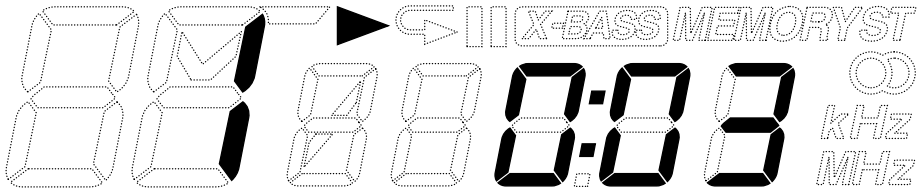


Step-1. CD Pickup can be move when press the "CUE" button either "REVIEW" button.
"CUE" button : CD Pickup move to out side of disc.
"REVIEW" button : CD Pickup move to in side of disc.
(CD Pickup can't move any more, if reach to most in side.)
Note: If the CD Lid open (SW810 open), the unit can be operate Step-1 only and the unit can't operate from Step-2 to Step-5.

Step-2. The LASER light up when press the "PLAY/PAUSE" button.



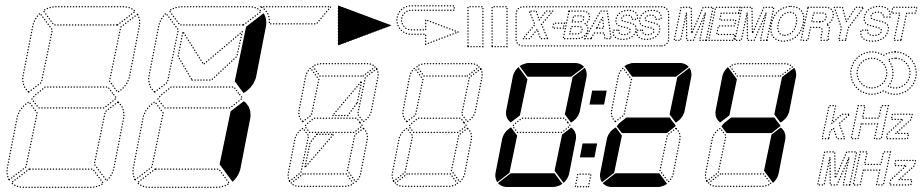
Step-3. CD disc can be playing mode when press the "PLAY/PAUSE" button during the LASER ON.



The LCD displays indicate the "Track Number" and the "Playing Time".

Step-4. CD disc will be stop and the LASER goes out when pressing the "STOP" button, and return back to Step-1. (CD Pickup position keeps at that point).

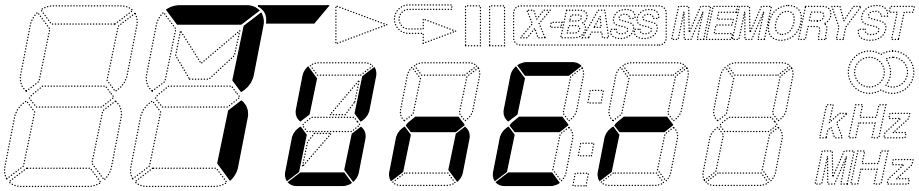
Step-5. It can be control to ON/OFF of the Tracking Servo when press the "MEMORY" button during the CD playing mode.
(The Servo will be ON when playing mode again, if to make stop mode during the Servo OFF condition.)



The LCD displays indicate the playing time of CD Pickup point.
(The LCD displays indicate the playing time at that point when Pickup moving, if press the "CUE" button or press the "REVIEW" button.)

B. TUNER TEST MODE

Set the function switch to "TUNER" when pressing the "REVIEW(PRESET DOWN)" button together with "BAND(REPEAT)" button.



The LCD displays indicate the "TunEr" for several seconds. after that, the LCD displays indicate to the normal frequency.

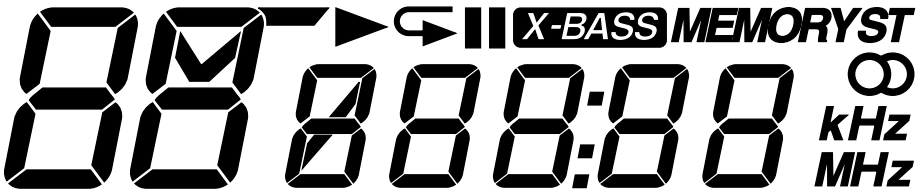
PRESET. NO	U.S.A.	FM MODE
P-01	FM 87.5 MHz	STEREO
P-02	FM 108.0 MHz	STEREO
P-03	FM 98.0 MHz	STEREO
P-04	FM 90.0 MHz	STEREO
P-05	FM 106.0 MHz	STEREO
P-06	AM 530 KHz	
P-07	AM 1720 KHz	
P-08	AM 990 KHz	
P-09	AM 600 KHz	
P-10	AM 1400 KHz	
P-11	FM 106.0 MHz	MONO
P-12	FM 90.0 MHz	MONO
P-13	FM 98.0 MHz	MONO
P-14	FM 108.0 MHz	MONO
P-15	FM 87.5 MHz	MONO

Note:

1. The Preset Channel can be change when press the "PRESET UP (CUE) button either "PRESET DOWN (REVIEW)" button.
   PRESET UP button is pressed : P-01 -> P-02 -> > > > > P-15 -> P-01
   PRESET DOWN button is pressed : P-15 -> P-14 -> > > > > > P-01 -> P-15
2. The Tuner Mode can be change when press the "BAND (REPEAT)" button.
   BAND button is pressed : FM stereo -> FM mono -> AM -> FM stereo

C. LCD TEST MODE

Set the function switch to "TUNER (or CD)" when pressing the "REVIEW(PRESET DOWN)" button together with "MEMORY" button.

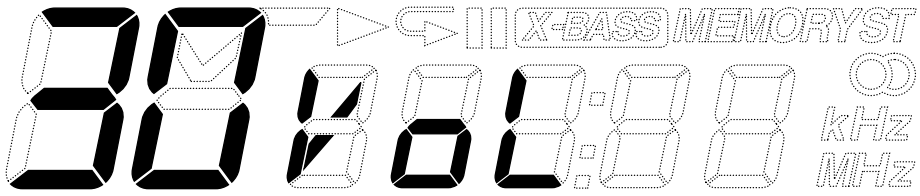


All of the segments will light up.

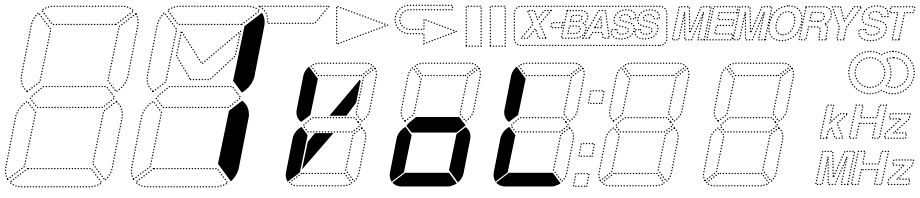
D. VOLUME TEST MODE

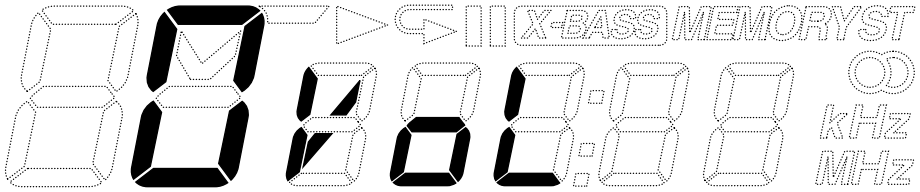
Set the function switch to "POWER ON (TAPE PLAY, TUNER or CD)" when pressing the "REVIEW(PRESET DOWN)" button together with "PLAY/PAUSE (TUNING UP)" button.
The LCD display do not indicate the VOLUME level at this time.
But, the VOLUME level is "12" which is defaults level.

The VOLUME LEVEL can be change when press the "VOLUME UP" button either press the "VOLUME DOWN" button.
"VOLUME UP" button is pressed : (12 VoL) -> 30 VoL -> 30 VoL (30 is flashing)



"VOLUME DOWN" button is pressed : (12 VoL) -> 1 VoL-> 0 VoL -> 0 VoL (0 is flashing)





NOTES ON SCHEMATIC DIAGRAM

• Resistor:
To differentiate the units of resistors, the symbol as K and M are used: the symbol K means 1000 ohm and the symbol M means 1000 kohm and the resistor without any symbol is an ohm resistor. The resistor designated "Fusible" is a fuse type resistor

• Capacitor:
To indicate the unit of capacitor, a symbol P is used: this symbol P means micro-micro-farad and the unit of the capacitor without such a symbol is microfarad. As to electrolytic capacitor, the expression “capacitance/withstand voltage” is used.
(CH), (TH), (RH), (UJ): Temperature compensation
(ML): Mylar type
(P.P.): Polypropylene type

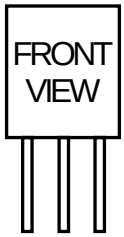
• The indicated voltage in each section is the one measured by Digital Multimeter between such a section and the chassis with no signal given.

1. Tuner
( ): AM mode
Marking except for ( ): FM mode
2. CD
( ): Play mode
Marking except for ( ): Stop state
3. Deck section
( ): Record mode
Marking except for ( ): Playback mode
Display / Control section:
( ): Active state
Marking except for ( ): CD Function mode at stop state

• Schematic diagram and Wiring Side of P.W.Board for this model are subject to change for improvement without prior notice.

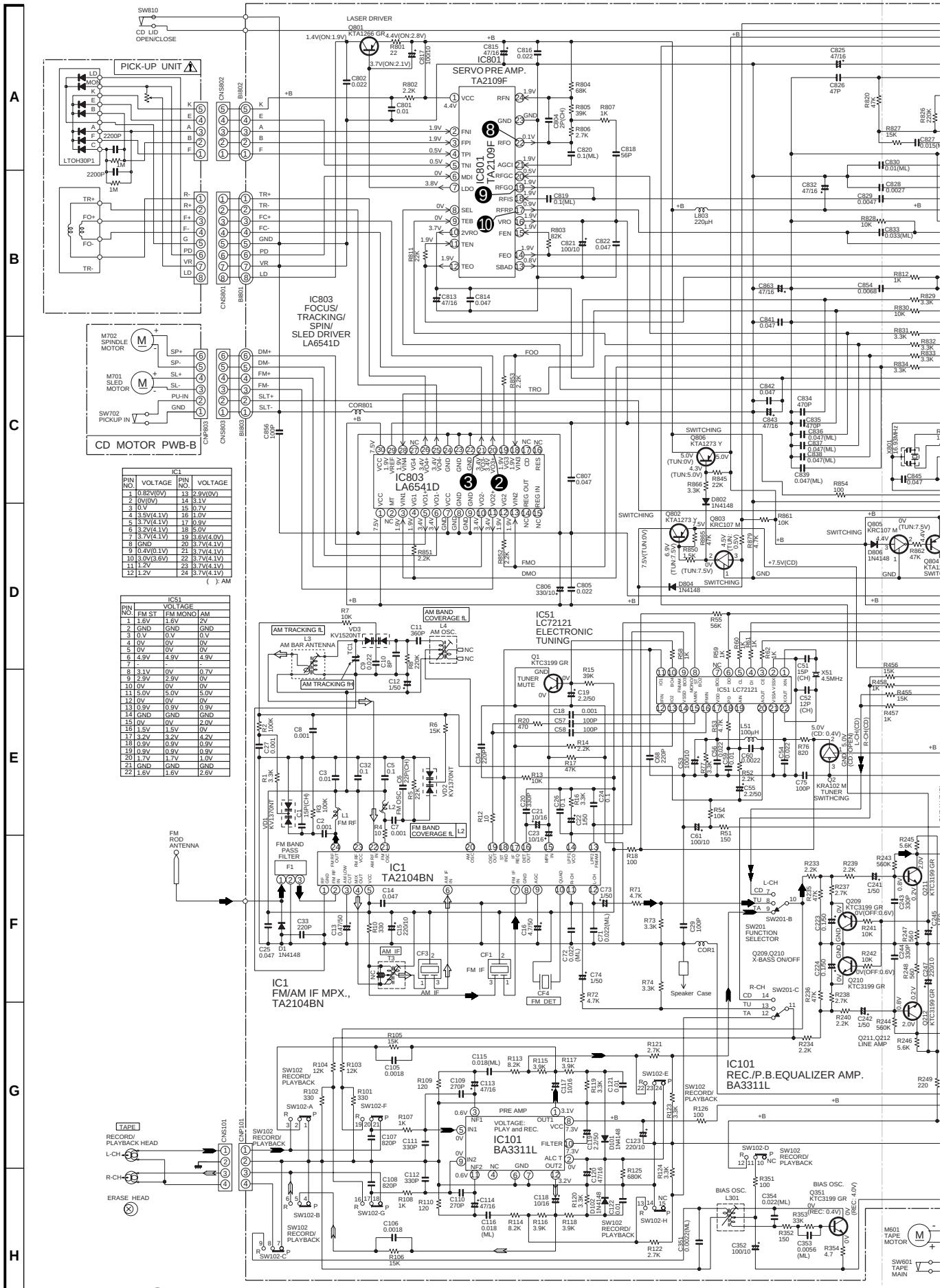
• Parts marked with “ ⚠ ” (⊏ ═ ═ ⊐) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF. NO	DESCRIPTION	POSITION
SW102	RECODE/PLAYBACK	REC—P.B.
SW201	FUNCTION SELECTOR	TAPE/OFF— TUNER/ON—CD/ON
SW601	TAPE MAIN	OFF—ON
SW702	PICKUP IN	OFF—ON
SW801	PLAY/PAUSE/ TUNING UP	OFF—ON
SW802	STOP/TUNING DOWN	OFF—ON
SW803	REPEAT/BAND	OFF—ON
SW804	TUNER/MEMORY	OFF—ON
SW805	CUE/PRESET UP	OFF—ON
SW806	REVIEW/ PRESET DOWN	OFF—ON
SW807	VOLUME UP	OFF—ON
SW808	VOLUME DOWN	OFF—ON
SW809	X-BASS	OFF—ON
SW810	CD LID	OFF—ON



KRA102 M
KRC107 M
KTA1046 Y
KTA1266 GR
KTA1273 Y
KTC3199 GR

Figure 11 TYPES OF TRANSISTOR



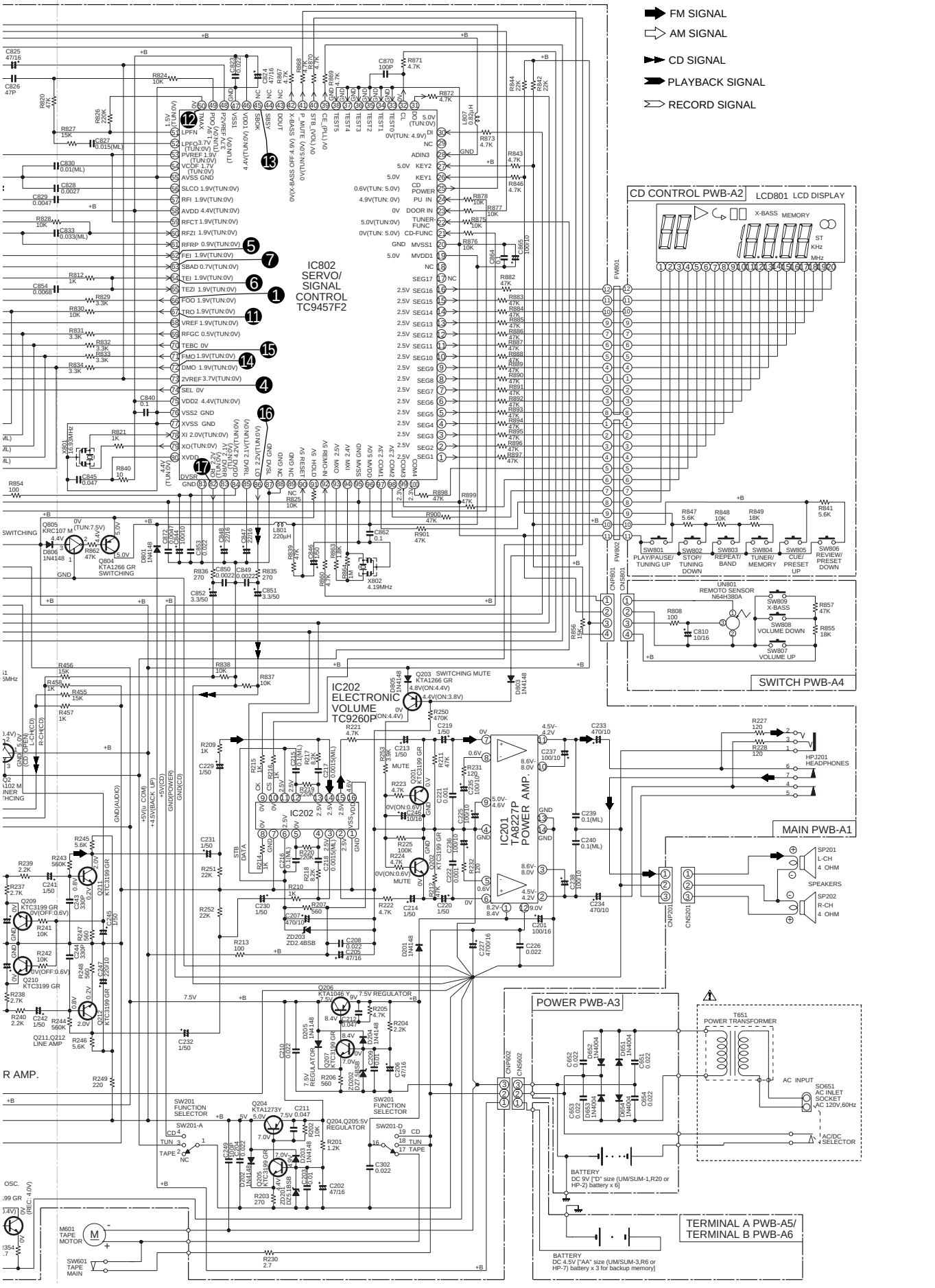
IC1			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0.82V(0V)	13	2.9V(0V)
2	0V(0V)	14	3.1V
3	0 V	15	0.7V
4	3.5V(4.1V)	16	1.0V
5	3.7V(4.1V)	17	0.9V
6	3.2V(4.1V)	18	5.0V
7	3.7V(4.1V)	19	3.6V(4.0V)
8	GND	20	3.7V(4.1V)
9	0.4V(0.1V)	21	3.7V(4.1V)
10	3.0V(3.6V)	22	3.7V(4.1V)
11	1.2V	23	3.7V(4.1V)
12	1.2V	24	3.7V(4.1V)

( ): AM

IC51			
PIN NO.	VOLTAGE		
	FM ST	FM MONO	AM
1	1.6V	1.6V	2V
2	GND	GND	GND
3	0.V	0.V	0.V
4	0V	0V	0V
5	0V	0V	0V
6	4.9V	4.9V	4.9V
7	-	-	-
8	3.1V	0V	0.7V
9	2.9V	2.9V	0V
10	0V	0V	0V
11	5.0V	5.0V	5.0V
12	0V	0V	0V
13	0.9V	0.9V	0.9V
14	GND	GND	GND
15	0V	0V	2.0V
16	1.5V	1.5V	0V
17	3.2V	3.2V	4.2V
18	0.9V	0.9V	0.9V
19	0.9V	0.9V	0.9V
20	1.7V	1.7V	1.0V
21	GND	GND	GND
22	1.6V	1.6V	2.6V

• The numbers ❶ to ⑰ are waveform numbers shown in page 16.

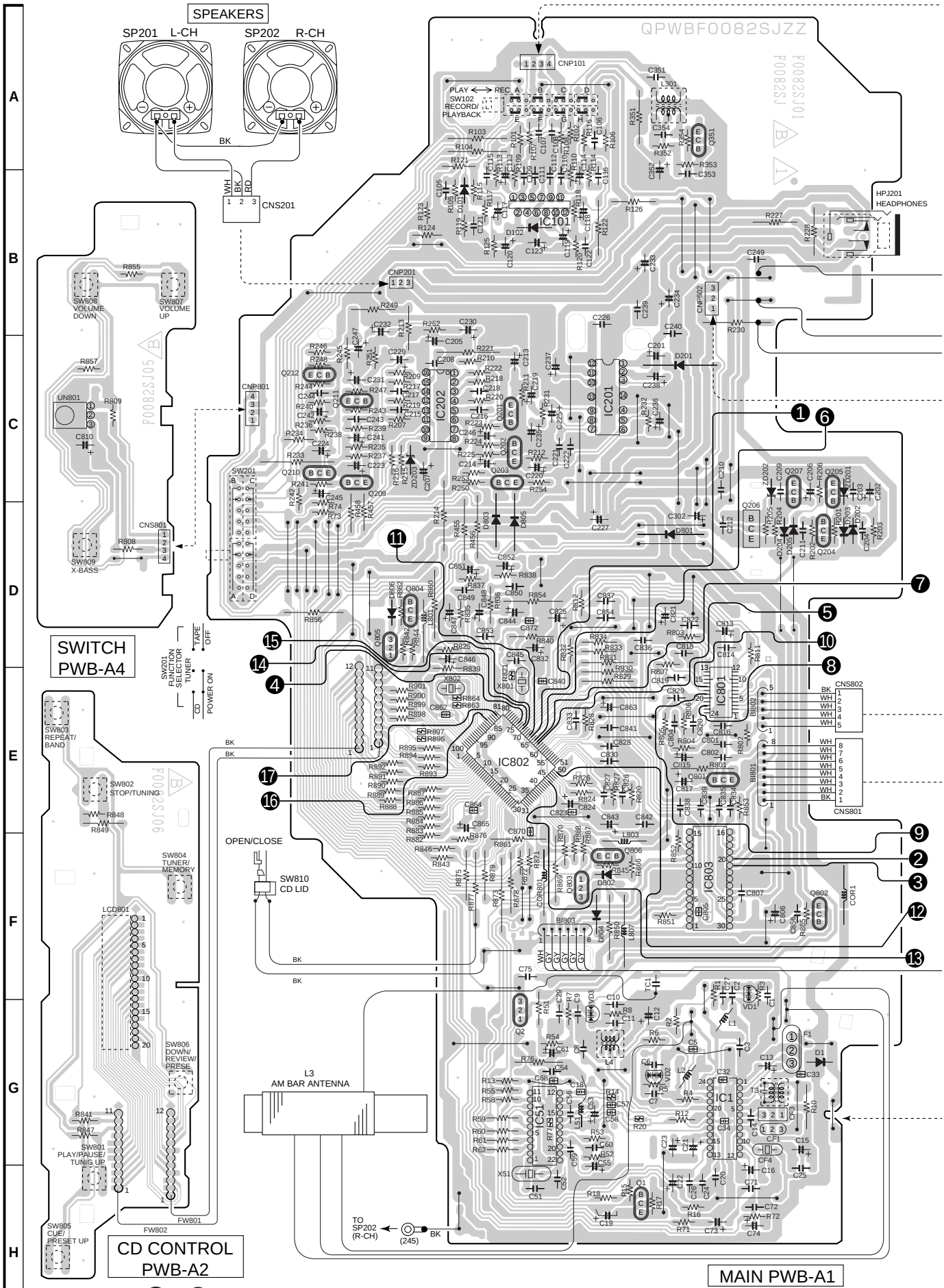
Figure 12 SCHEMATIC DIAGRAM (1/2)



• NOTES ON SCHEMATIC DIAGRAM can be found on page 11.

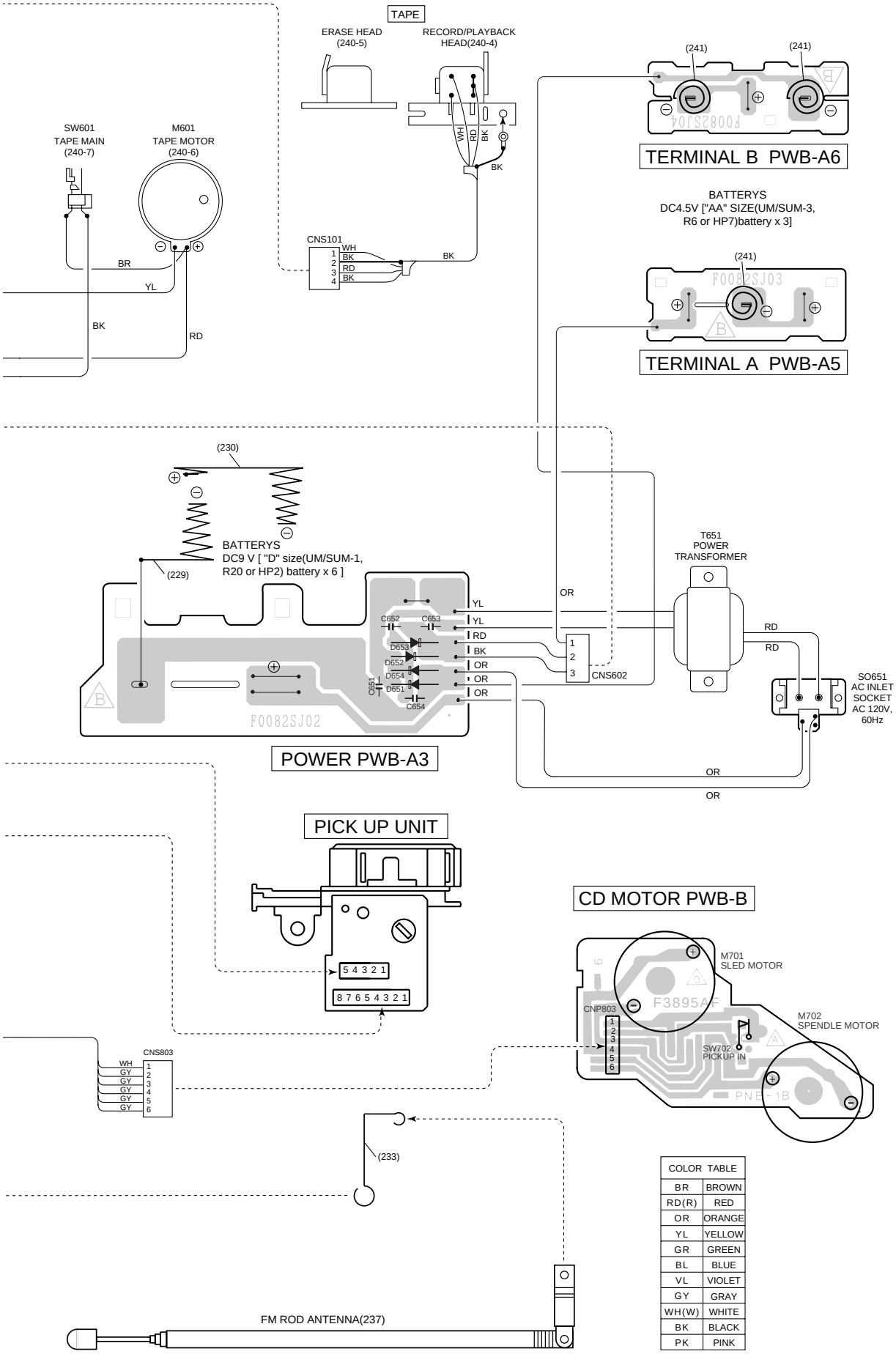
7	8	9	10	11	12

Figure 13 SCHEMATIC DIAGRAM (2/2)



• The numbers ❶ to ⓱ are waveform numbers shown in page 16.

Figure 14 WIRING OF P.W.BOARD (1/2)



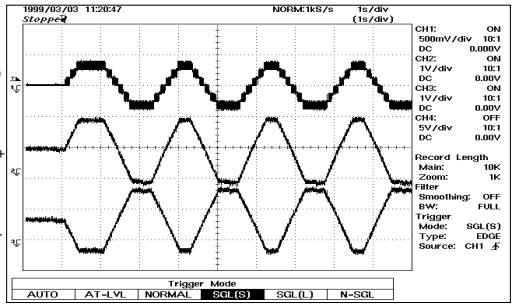
COLOR TABLE	
BR	BROWN
RD(R)	RED
OR	ORANGE
YL	YELLOW
GR	GREEN
BL	BLUE
VL	VIOLET
GY	GRAY
WH(W)	WHITE
BK	BLACK
PK	PINK

7	8	9	10	11	12

Figure 15 WIRING OF P.W.BOARD (2/2)

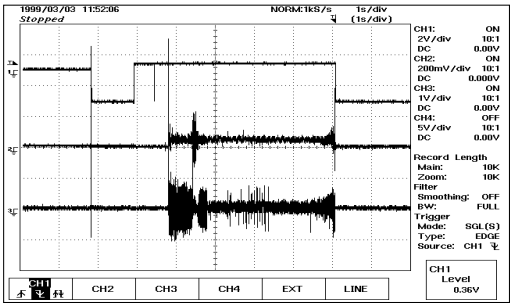
WAVEFORMS OF CD CIRCUIT

NO DISC FOCUS SEARCH



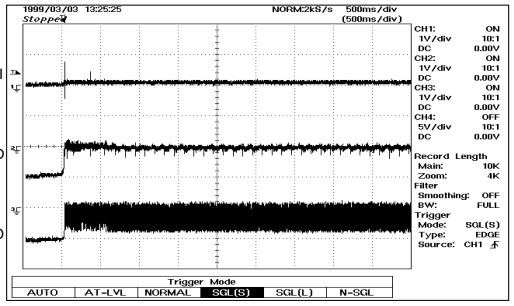
1 FOO — IC802 66pin
2 FO+ — IC803 20pin
3 FO- — IC803 21pin

FOCUS SEARCH→TOC IL



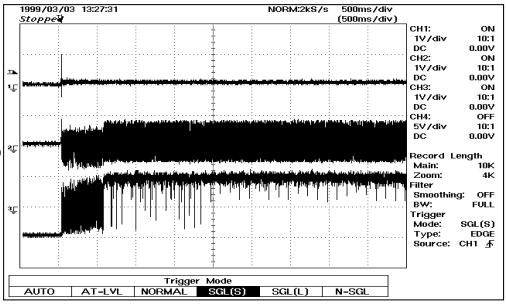
4 SEL — IC802 74pin
5 FEI — IC802 62pin
6 TEI — IC802 64pin

STOP→PLAY



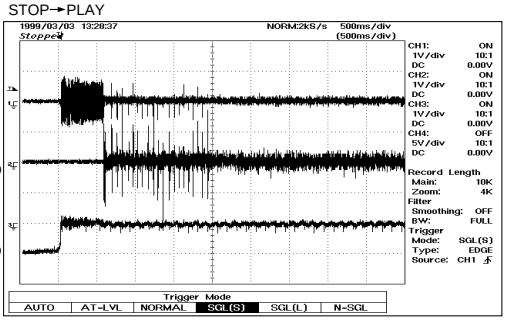
5 FEI — IC802 62pin
7 SBAD — IC802 63pin
8 RFO — IC801 22pin

STOP→PLAY



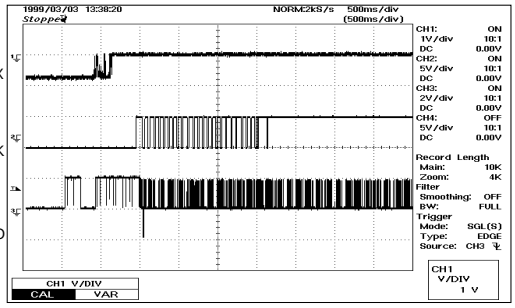
5 FEI — IC802 62pin
9 RFGO — IC801 19pin
10 RFRP — IC801 17pin

STOP→PLAY



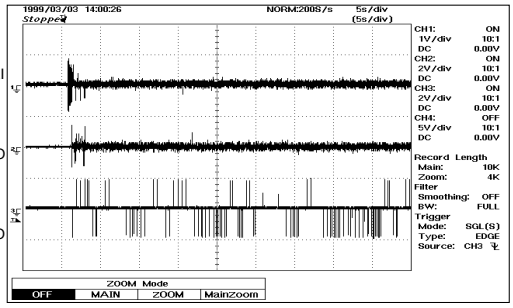
6 TEI — IC802 64pin
11 TRO — IC802 67pin
7 SBAD — IC802 63pin

STOP→PLAY



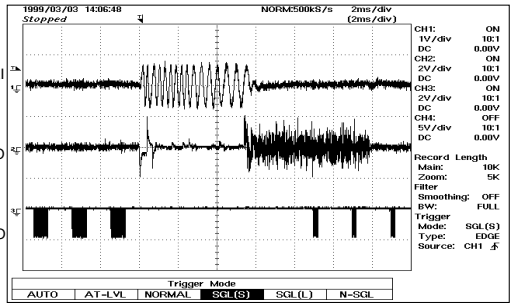
12 TMAX — IC802 50pin
13 SBOK — IC802 45pin
14 DMO — IC802 72pin

STOP→PLAY



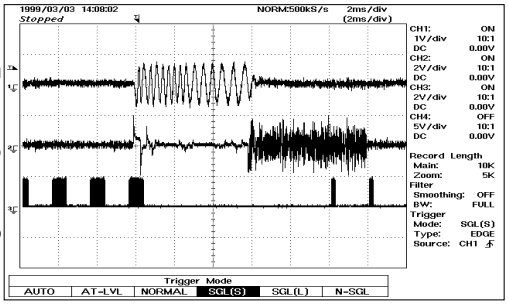
6 TEI — IC802 64pin
11 TRO — IC802 67pin
15 FMO — IC802 71pin

CUE



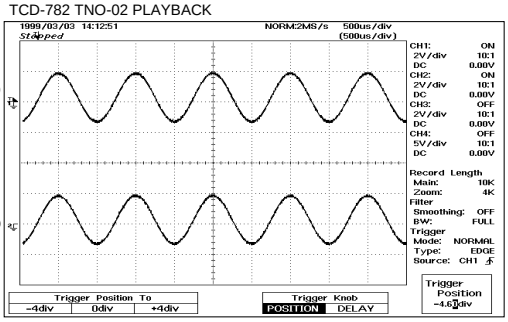
6 TEI — IC802 64pin
11 TRO — IC802 67pin
15 FMO — IC802 71pin

REVIEW



6 TEI — IC802 64pin
11 TRO — IC802 67pin
15 FMO — IC802 71pin

TCD-782 TNO-02 PLAYBACK



16 LO — IC802 86pin
17 RO — IC802 82pin

TROUBLESHOOTING (CD SECTION)

When the CD does not function

When the CD section does not operate when the objective lens of the optical pickup is dirty, this section may not operate. Clean the objective lens, and check the playback operation. When this section does not operate even after the above step is taken,check the following items.
Remove the cabinet and follow the troubleshooting instructions.
"Track skipping and/or no TOC (Table Of Contents) may be caused by build up of dust other foreign matter on the laser pickup lens. Before attempting any adjustment make certain that the lens is clean. If not, clean it as mentioned below."

Turn the power off.
Gently clean the lens with a lens cleaning tissue and a small amount of isopropyl alcohol.
Do not touch the lens with the bare hand.

Dust gradually accumulates on the objective lens during use, and it may degrade performance.
To avoid this problem, use a cleaning disc designed for CD optical pickup lenses.

HOW TO USE

1. Using the brush in the cleaner cap, apply 1 or 2 drops of the cleaning fluid to the brush on the CD cleaner disc which has ▲ the mark next to it.
2. Place the CD cleaner disc onto the CD disc tray with the brush side down, then press the play button.
3. You will hear music for about 20 seconds and the CD player will automatically stop. If it continues to turn, press the stop button.

CAUTION

- The CD lens cleaner should be effective for 30 - 50 operations, however if the brushes become worn out earlier then please replace the cleaner disc.
- If the CD cleaner brushes become very wet then wipe off any excess fluid with a soft cloth.
- Do not drink the cleaner fluid or allow it to come in contact with the eyes. In the event of this happening then drink and / or rinse with clean water and seek medical advice.
- The CD cleaner disc must not be used on car CD player or on computer CD ROM drives.

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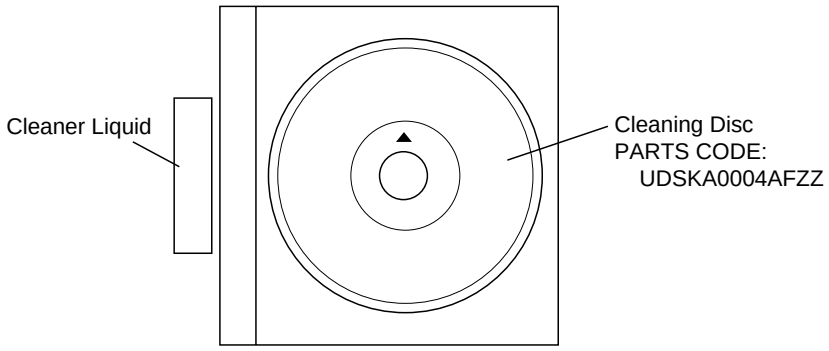


Figure 17

• The CD function will not work.

The CD operating keys don't work.
↓ Yes
Check the power supply, 16.93 MHz clock, and reset terminal.
↓ Yes
Check the pickup-in switch (SW702) position.
↓ Yes
Check the Focus system.

• Laser failure.

Is +7.5V applied to the Collector of Q206 ?
- No → Check the PWB pattern of Q206.
- Yes ↓

Is +5V applied to the collector of Q204 and Q806 ?
- No → Check the PWB Patten of IC204 and Q806.
- Yes ↓

Is +5V applied to the pin 75 (VDD) and pin 96 (MVDD) of IC802 ?
- No → Check the PWB pattern between collector of Q806 and pin 75 of IC802, and emiter of Q806 and Q804 and pin 96 of IC802.
- Yes ↓

Is +5V applied to the pin 1 (VCC) of IC801 ?
- No → Check the PWB pattern between collector of Q204 and pin 1 of IC801.
- Yes ↓

Is +0V applied to the pin 74 (SEL) of IC802 ?
- No → Check the laser come on when pattern cut between pin 8 (SEL) of IC801 and pin 74 (SEL) of IC802.
- Yes ↓

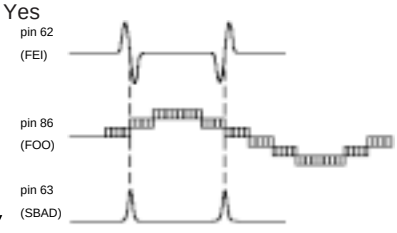
Is approx. 1.8V applied to the collector of Q801.
- No → Check the peripheral parts of IC801 and Q801. If it is normal, the optical pickup is faulty.
- Yes ↓

Check BI801/CNS801. If it is normal, the optical pickup is faulty.

• Focus failure.

Does the optical pickup move up and down when the disc is removed?
- No → Check as stated in item "FOCUS SERVO SAWTOOTH WAVE FAILURE".
- Yes ↓

Is the following waveform ouput at the pin 62 (FEI) of IC802 when the disc is set?
- No → Check the periphery of IC801 and BI801/CNS801. Is it normal?
  - Yes ↓ The optical pickup is faulty.
- Yes ↓

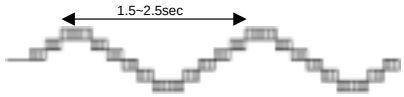


Is the waveform shown above input at the pin 63 (SBAD) of IC802?
- No → Check the pattern between pin 13 of IC801 and pin 63 of IC802. Check the periphery of IC801 and BI801/CNS801.
- Yes ↓

IC801 is faulty.

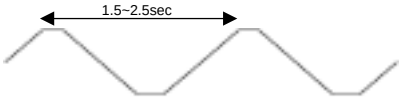
• Focus servo sawtooth wave failure.

Is sawtooh wave output to the pin 66 (FOO) of IC802 ?
No → IC802 is faulty.
Yes



Is +7.5V applied to the pins 1 and 30 (VCC) of IC803 ?
No → Check the PWB pattern of IC803.
Yes

Is sawtooth wave obtained between pins 20 and 21 of IC803 ?
No → Check the PWB pattern of IC803.
Yes



Is sawtooth wave obtained between pins 3 and 4 of BI801/ CNS801 ? (as shown above)
No → Check the PWB pattern between BI801/CNS801 and IC803.
Yes

BI801/CNS801 connection failure or optical pickup failure.

• Spindle motor clv servo failure.

Is following wave output to the pin 72 (DMO) of IC802 when the Function is changed to "PLAY" from "STOP" ?
No → Check the procedure in "HF ERROR". If OK. IC802 is faulty.
Yes

Is above wave obtained between pins 5 and 6 of IC803 ?
No → Check the PWB pattern between pin 72 (DMO) of IC802 and pins 5 and 6 of IC803. If OK. IC803 is faulty.
Yes

Is above wave obtained between pins 5 and 6 of BI803/ CNS803 ?
No → Check the PWB pattern between BI803/CNS803 and IC803.
Yes

BI803/CNS803 connection failure or optical pickup failure.

• Track search failure

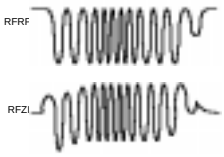
Does the sled motor run in FF/REW state when the CD TEST MODE is set?
- No → Check as stated in item "SLED MOTOR OPERATION FAILURE".
- Yes ↓

Is the following wave output to the pin 67 (TRO) of IC802 during track search in normal playback?
- No → IC802 failure.
- Yes ↓

Is the following wave output to the pins 12 (TEO) of IC801 during track search in normal playback?
- No → Check the PWB pattern between pin 67 (TRO) of IC802 and pin 28 of IC803. Check the PWB pattern between pins 25 and 26 of IC803 and Optical pickup. If OK. Optical pickup failure.
- Yes ↓

Is the above wave output to the pins 64 (TEI) and 65 (TEZI) of IC802 during track serch in normal playback?
- No → Check the PWB pattern between pin 12 (TEO) of IC801 and pins 64 (TEI) and 65 (TEZI) of IC802. If OK. IC801 failure.
- Yes ↓

Is the following wave output to the pin 60 (RFZI) and 61 (RFRP) of IC802 during track search in normal playback?
- No → Check the PWB pattern between pin 22 (RFO) and 18 (RFIS), 17 (RFRP) of IC801 and pins 60 and 61 of IC802. If OK. IC801 failure.
- Yes ↓

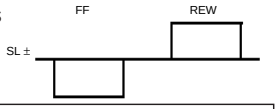


Normal.

• Sled motor operation failure.

Is following sled feed signal output the pin 71 (FMO) of IC802 when FF/REW key is pressed after the CD TEST MODE is seted?
- No → IC802 is faulty.
- Yes ↓

Is following sled feed signal input the pins 12 and 13 of IC803 when FF/REW key is pressed after the CD TEST MODE is seted?
- No → Check the PWB pattern between pin 71 of IC802 and pins 12 and 13 of IC803.
- Yes ↓



Is sled feed signal output the pins 10 and 11 of IC803?
- No → Check the peripheral parts of IC803. If OK, IC803 is faulty.
- Yes ↓

Is sled feed voltage applied between both terminals of sled motor?
- No → Check the BI803/CNS803.
- Yes ↓

Check the CD mechanism (periphery of sled motor). If the sled motor does not run when DC2.0V is applied to both terminals of sled motor, the sled motor is faulty.

• Sled servo failure.

Is following sled signal output the pin 71 (FMO) of IC802 during playback?
- No → IC802 is faulty.
- Yes ↓

Normal.

FUNCTION TABLE OF IC

IC51 VHiLC72121/-1: Electronic Tuning (LC72121) (1/2)

Pin No.	Port Name	Terminal Name	Input/Output	Function
1	Xtal	XIN	Output	Crystal oscillator connection.(4.5 MHz/7.2 MHz)
2	Ground	VSSX	Output	Ground terminal for the crystal oscillation circuit system of LC72121.
3	Chip enable	CE	Output	High level when inputting serial data (DI) to LC72121 or sending serial data (DO).
4	Input data	DI	Input	Input terminal for serial data that is transferred from the controller to LC72121.
5	Clock	CL	Output	Clock that synchronizes data when inputting serial data (DI) to LC72121 or sending serial data (DO).
6	Output data	DO	Output	Output terminal that sends data from LC72121 to the controller. The output data is defined by serial data DOC0-DOC2.
7*	Output port	BO1	Output	Output dedicated terminal. Output state is defined by the serial data BO1-BO4. Data 0: Open Data 1: L Time base signal (8 Hz) output is possible from BO1 terminal. (When setting serial data TBC = 1.)
8-10	Output port	BO2-BO4	Output	Output dedicated terminal. Output state is defined by the serial data BO1-BO4. Data 0: Open Data 1: L Time base signal (8 Hz) output is possible from BO1 terminal. (When setting serial data TBC = 1.)
11	Input/output port	IO1	Input/Output	Terminal for both input and output. Input and output are defined by serial data IDC1 and IOC2. Data 0: Input port Data 1: Output port When specified as the input port. The input terminal state is transferred from the DO terminal to the controller. Input state "L": Data -> 0 Input state "H": Data -> 1 When specified as the output port. Output state is defined by the serial data IO1 and IO2. Data 0: Open Data 1: L When turning on the power or resetting, the terminal becomes the input port.
12	IF counter	IF IN	Input	Input frequency is 0.4-12 MHz. Signal is transferred to the IF counter directly. The result is sent from M5B of the IF counter through DO. 4 measuring times: 4, 8, 32, and 64 ms
13	Input/output port	IO2	Input/Output	Terminal for both input and output. Input and output are defined by serial data IDC1 and IOC2. Data 0: Input port Data 1: Output port When specified as the input port. The input terminal state is transferred from the DO terminal to the controller. Input state "L": Data -> 0 Input state "H": Data -> 1 When specified as the output port. Output state is defined by the serial data IO1 and IO2. Data 0: Open Data 1: L When turning on the power or resetting, the terminal becomes the input port.
14	Ground	VSSD	—	Ground terminal for the digital system other than VSSA and VSSX of LC72121.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC51 VHiLC72121/-1: Electronic Tuning (LC72121) (2/2)

Pin No.	Port Name	Terminal Name	Input/Output	Function
15	Local oscillation, Signal input	AMIN	Input	Serial data input: AMIN is selected when DVS = 0 is set. When serial data input SNS = 1 is set: Input frequency is 2-40 MHz. Signal is sent to the swallow counter directly. Dividing number to be set is 272- 65535. The actual dividing number is the same as the setting value. When serial data input SNS = 0 is set. Input frequency is 0.5-10 MHz. Signal is transferred to the 12-bit programmable divider directly. Dividing number to be set is 4-4095. The actual dividing number is the same as the setting value.
16	Local oscillation, Signal input	FMIN	Input	Serial data input: FMIN is selected when DVS = 1 is set. Input frequency is 10-160 MHz. Signal is transferred to the swallow counter through the built-in prescaler (1/2). Dividing number to be set is 272-65535. The actual dividing number is twice as the setting value because there is a built-in prescaler(1/2).
17	Power supply	VDD	—	Power supply terminal for LC72121 (VDD = 2.7-3.5 V). Power on reset circuit works when POWER ON.
18	Charge pump output	PD	Output	Charge pump output terminal for PLL. When the local oscillation signal frequency divided by N is higher then the refernce frequency, "H" level is sent from the PD terminal. When it is lower, "L" level is sent. When the frequencies are the same, they become high impedance.
19	L.P.F. Amplifier transistor	AIN	Input	L.P.F. Amplifier transistor
20	L.P.F. Amplifier transistor	AOUT	Output	L.P.F. Amplifier transistor
21	Ground	VSSA	—	Ground terminal for the low-pass filter MOS transistor of LC72121.
22	Xtal	XOUT	Output	Crystal oscillator connection.(4.5 MHz/7.2 MHz)

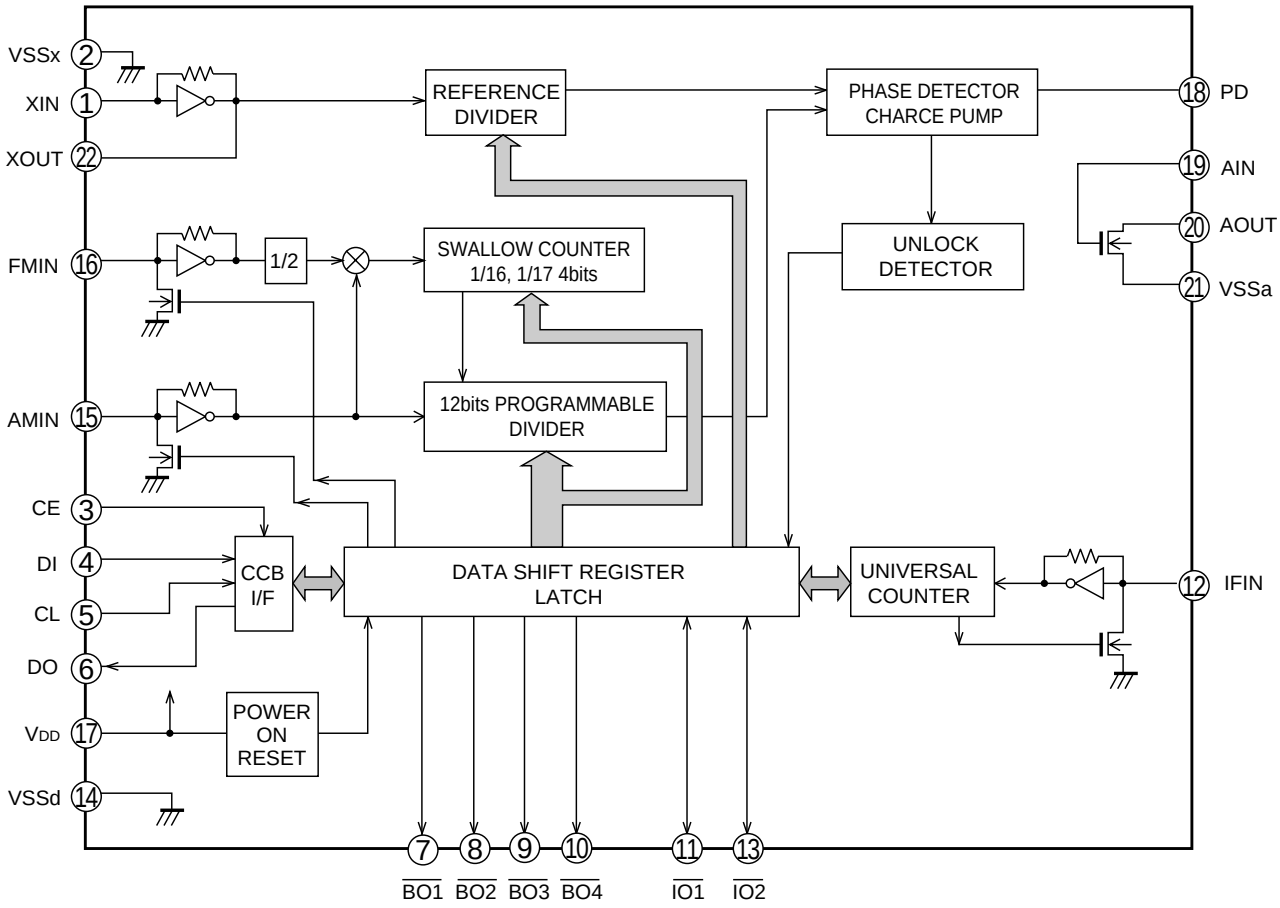
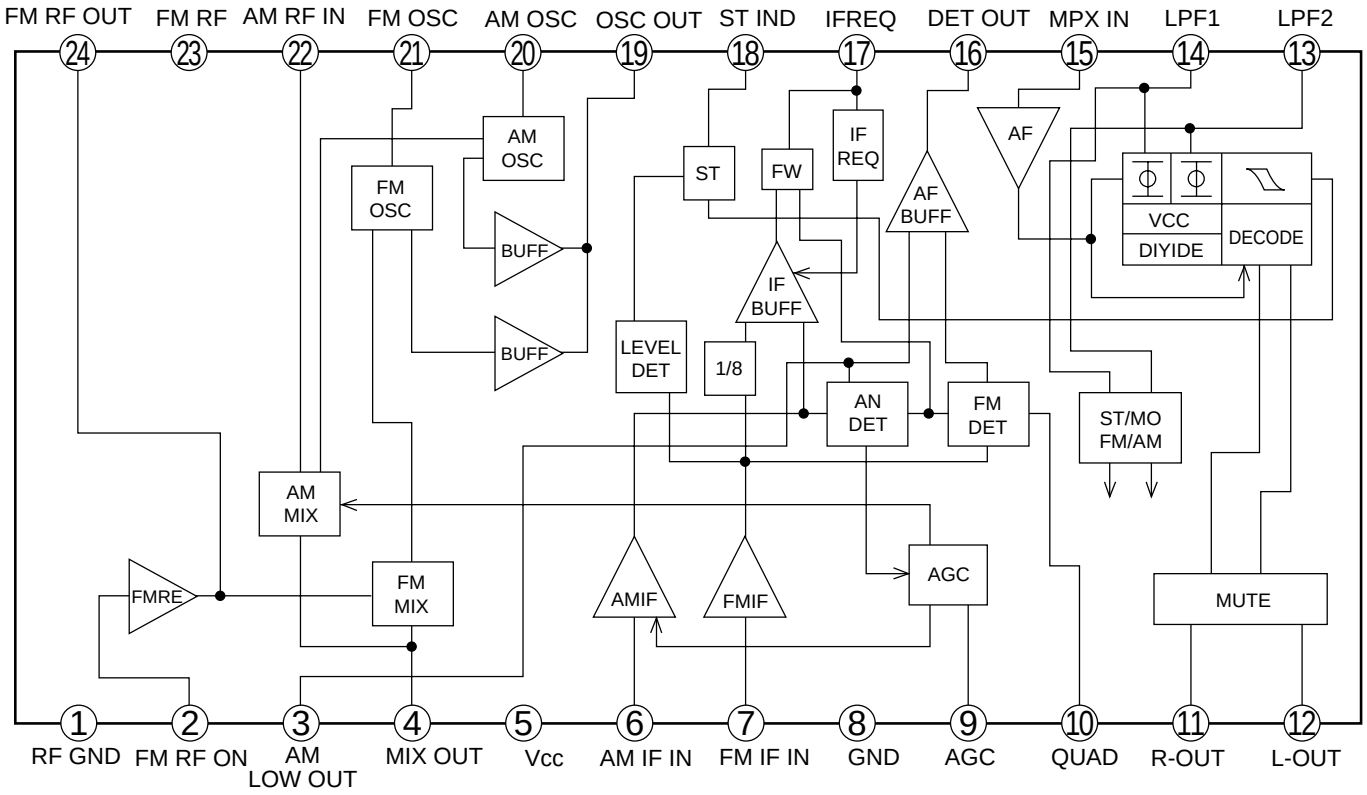


Figure 22 BLOCK DIAGRAM OF IC

IC1 VHiTA2104BN-1: FM /AM IF MPX. (TA2104BN)



IC202 VHiTC9260P/-1: Electronic Volume (TC9260P)

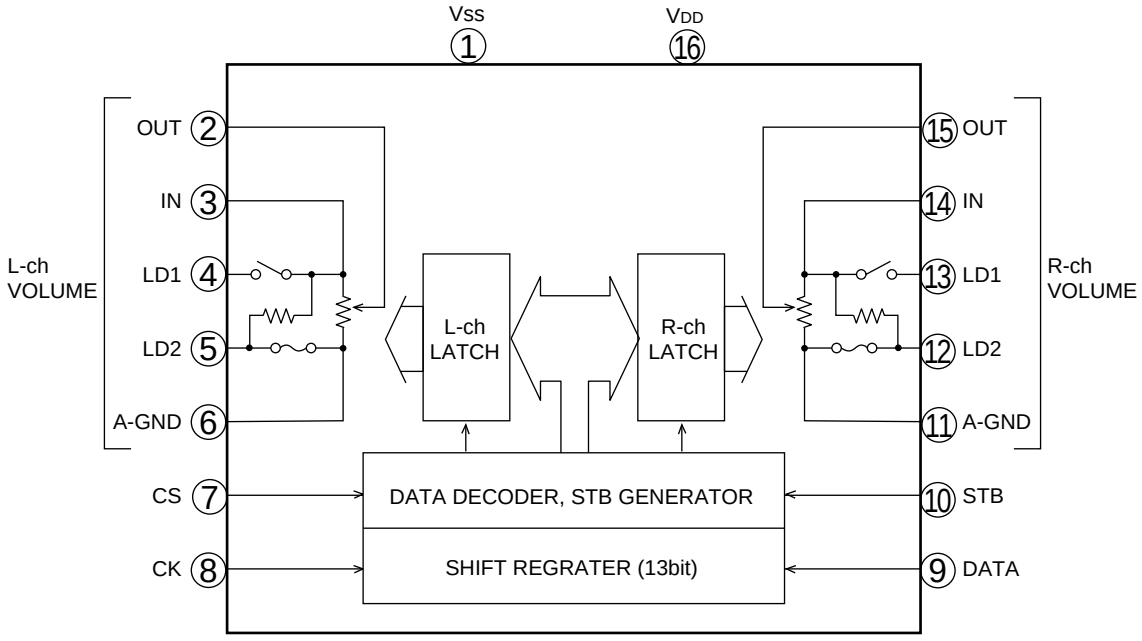


Figure 23 BLOCK DIAGRAM OF IC

IC802 VHiTC9457F2-1: Servo/Signal Control (TC9457F2) (1/4)

Pin No.	Port Name	Terminal Name	Input/Output	Function
1*	(OT5)S1	SEG1	Output	Segment signal output to the LCD panel.
2	(OT6)S2	SEG2	Output	Up to 72 segments in a matrix with COM1 to COM4 can be displayed.
3	(OT7)S3	SEG3	Output	All of the S1 to S18 pins can be switched for output ports by a program.
4	(OT8)S4	SEG4	Output	Also, the S15 to S18 pins each can be switched for I/O ports individually.
5	(OT9)S5	SEG5	Output	When set for I/O ports, these pins become Nch open-drain output.
6*	(OT10)S6	SEG6	Output	Furthermore, the S11 to S14 and the P8-0 to P8-3 pins can be switched for
7*	(OT11)S7	SEG7	Output	use as CD signal (CLCK to IPF) input/output pins by a program.
8*	(OT12)S8	SEG8	Output	• CLCK: Subcodes P thru W data readout clock input/output.
9*	(OT13)S9	SEG9	Output	Selected between input and output by a command.
10*	(OT14)S10	SEG10	Output	• DATA: Subcodes P thru W data output.
11*	(CLCK/OT15) S11	SEG11	Output	• SFSY: Playback system frame sync signal output.
				• LRCK: Channel clock (44.1kHz) output.
12*	(DATA/OT16) S12	SEG12	Output	It outputs a low for L channel and a high for R channel. Polarity can be inverted by a command.
13*	(SFSY/OT17) S13	SEG13	Output	• BCK : Bit clock (1.4122MHz) output.
				• AOUT: Audio data output.
14*	(LRCK/OT18) S14	SEG14	Output	• MBOV: Buffer memory-over signal output. It outputs a high when buffer overflows.
15	(BCK/S15) P8-0	SEG15	Output	• IPF : Correction flag output. When AOUT is C2 correction output, it outputs a high indicating that correction is impossible.
16	(AOUT/S16) P8-1	SEG16	Output	
17	(MBOV/S17) P8-2	SEG17	Output	
18	(IPF/S18) P8-3	NC	Output	
19	MVDD	MVDD1	Input/Output	Power supply pins.
20	MVSS	MVSS1	Input/Output	Normally, apply a voltage of 4.5 to 5.5V to VDD. In a backup state (when the CKSTP instruction executed), the device's current consumption is reduced to 1µA or less, allowing for the supply voltage to be lowered to 2.0V. The device is reset and the program starts from address 0 when a voltage of 2.7V or more is applied to this pin when it is at 0V (power-on reset).
21*	(K0)P1-0	CD-FUNC	Input	4-bit CMOS I/O ports.
22*	(K1)P1-1	TUNER-FUNC	Input	These ports can be set for input or output bit for bit by a program.
23	(K2)P1-2	DOOR IN	Input	These pins can be pulled up to VDD or down to GND by program.
24	(K3)P1-3	PU IN	Input	Therefore, they can be used as key input pins. Also, when they are set for I/O port, a change of state in this input can be used to clear the clock stop or wait mode.
25	(DCREF)P3-0	CD POWER	Output	5-bit CMOS I/O ports.
26	(ADin1)P3-1	KEY 1	Input	These ports can be set for input or output bit for bit by a program.
27	(ADin2)P3-2	KEY 2	Input	The P3-0 to P4-0 pins serve dual purposes as analog inputs for the internal
28	(ADin3)P3-3	ADIN 3	Input	6-bit 4-channel A/D converters.
29	(BUZR/ ADin4)P4-0	NC	Input	The internal A/D converters can complete conversion in 6 instruction cycles using a successive approximation method. The required pins can be set for A/D analog input bit for bit by a program. P3-0 can be set for reference voltage input, and the internal power supply (MVDD) can be used for this reference voltage. The P4-0 pin serves dual purposes as a buzzer output pin. The buzzer output can be selected from 8 frequencies, 0.625 to 3kHz. Each selected frequency can be output in one of four modes: continuous, single, 10Hz intermittent, and 10Hz intermittent at 1Hz interval. Whether or not to use and how to control the A/D converter and buzzer all can be set by a prograam.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC802 VHiTC9457F2-1: Servo/Signal Control (TC9457F2) (2/4)

Pin No.	Port Name	Terminal Name	Input/Output	Function
30 31* 32*	(S12)P4-1 (SO/S11/ SDA)P4-2 (SCK/SCL) P4-3	DI DO CL	Input Output Output	3-bit CMOS I/O ports. DI: Tuner Data Input pin. DO: Tuner Data Output pin. CL: Tuner/Volume Clock Output pin. These ports can be set for input or output bit for bit by a program. These pins serve dual purposes as input or output pins for the serial interface circuit (SIO). The SIO is a 2-wire/3-wire compatible serial interface. 4 or 8 bits of serial data, beginning with the MSB or LSB, are serially output from the SO/SDA, pin at each clock edge on the SCK/SCL pin, and the data on S11 or S12 pin is serially input to the device. The serial clock (SCK/SCL) allows selection between the internal (450/225/150/75 kHz) and external sources and a selection of the active edge, rise or fall. Moreover, since the clock and data can be output via Nch open-drain outputs, variouts, device controls and communication between controllers can be greatly facilitated. When an SIO interrupt is enabled, an interrupt is generated at completion of SIO execution and the program jumps to address 4. All inputs to SIO contain a Schmitt trigger circuit.
33 34 35 36 37 38	TEST0 TEST1 TEST2 TEST3 TEST4 TEST5	TEST0 TEST1 TEST2 TEST3 TEST4 TEST5	Input Input Input Input Input Input	Test mode control input pins. The test mode is selected when these pins are set high and normal operation is selected when they are low.
39* 40* 41* 42*	(OT19)/HSO (OT20)SPCK (OT21)SPDA (OT22)COFS	CE_(PLL) STB_(VOL) P_MUTE X-BASS	Output Output Output Output	CE_(PLL): Tuner Chip Enable Input pin. STB_(VOL): Volume Storobe Input pin. P_MUTE: MUTE ON/OFF Output pin. X-BASS: X-BASS ON/OFF Output pin.
43*	DOUT	(N/C)	Input/Output	Digital output pin.
44*	SBSY	(N/C)	Input/Output	Subcode block sync output pin. It outputs a high at the S1 position when subcode sync is detected.
45*	SBOK	(N/C)	Input/Output	Subcode Q data CRCC determination result output pin. It outputs a high when CRCC check is found OK.
46 47	VDD VSS	VDD1 VSS1	Input/Output Input/Output	CD unit's digital block power supply pins. Normally, apply 5V to VDD. When not using a CD (CD off), this power supply can be turned off, with only the controller power supply kept active, so that the contrller alone is operating. In this case, the CD off bit must be set to 1. When this bit is set to 1, pins 11 through 18 and pins 39 through 42 all are changed for output ports if they have been set for CD control signal input/output pins.
48	P2VREF	P2VREF	Input/Output	PLL block-2 VREF pin.
49	PDO	PDO	Input/Output	This pin outputs a phase error between EFM and PLCK signals.
50	TMAX	TMAX	Input/Output	TMAX detection result output pin. Selected by command bit TMPS. Longer than preset period: Outputs P2VREF. Shorter than preset period: Low level (Vss). Within preset period: High impedance.
51	LPFN	LPFN	Input/Output	Inverted input of low-pass filter amp.
52	LPFO	LPFO	Input/Output	Output of low-pass filter amp.
53	PVREF	PVREF	Input/Output	PLL block VREF pin.
54	VCOF	VCOF	Input/Output	VCO filter pin.
55	AVSS	AVSS	Input/Output	Analog block ground pin.
56	SLCO	SLCO	Input/Output	DAC output pin for data slice level generation.
57	RFI	RFI	Input/Output	RF signal input pin.
58	AVDD	AVDD	Input/Output	Analog block power supply pin.
59	RFCT	RFCT	Input/Output	RFRP signal center level input pin.
60	RFZI	RFZI	Input/Output	RFRP zero-cross input pin.
61	RFRP	RFRP	Input/Output	RF ripple signal input pin.
62	FEI	FEI	Input/Output	Focus error signal input pin.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC802 VHiTC9457F2-1: Servo/Signal Control (TC9457F2) (3/4)

Pin No.	Port Name	Terminal Name	Input/Output	Function
63	SBAD	SBAD	Input/Output	Subbeam add signal input pin.
64	TEI	TEI	Input/Output	Tracking error input pin. This input is read when tracking servo is on.
65	TEZI	TEZI	Input/Output	Tracking error zero-cross input pin.
66	FOO	FOO	Input/Output	Focus equalizer output pin.
67	TRO	TRO	Input/Output	Tracking equalizer output pin.
68	VREF	VREF	Input/Output	Analog reference power supply pin.
69	RFGC	RFGC	Input/Output	RF amplitude adjusting control signal output pin. It outputs 3-level PWM signals. (PWM carrier = 88.2kHz)
70	TEBC	TEBC	Input/Output	Tracking balance control signal output pin. It outputs 3-level PWM signals. (PWM carrier = 88.2kHz)
71	FMO	FMO	Input/Output	Focus equalizer output pin. It outputs 3-level PWM signals. (PWM carrier = 88.2kHz)
72	DMO	DMO	Input/Output	Disc equalizer output pin. It outputs 3-level PWM signals. (PWM carrier = DSP block 88.2kHz, synchronized to PXO)
73	2VREF	2VREF	Input/Output	Analog reference power supply pin. (2 x VREF)
74	SEL	SEL	Input/Output	APC circuit on/off signal output pin. When laser is on, this pin goes to a high-impedance state when UHS = low and outputs a high when UHS = high
75 76	VDD VDD	VDD2 VSS2	Input/Output Input/Output	CD unit's digital block power supply pins. Normally, apply 5V to VDD. When not using a CD (CD off), this power supply can be turned off, with only the controller power supply kept active, so that the contrller alone is operating. In this case, the CD off bit must be set to 1. When this bit is set to 1, pins 11 through 18 and pins 39 through 42 all are changed for output ports if they have been set for CD control signal input/output pins.
77	XVSS	XVSS	Input/Output	CD's crystal oscillator power supply pins. Normally, connect these pins to the power supply lines that are used in common for the VDD and VSS pins.
78 79	XI XO	XI XO	Input/Output Input/Output	CD's crystal oscillator input/output pins. Normally, connect 16.934MHz here. This clock is used as the system clock for the CD. After a system reset, it also is used as the system clock on the controller side.
80	XVDD	XVDD	Input/Output	CD's crystal oscillator input/output pins. Normally, connect these pins to the power supply lines that are used in common for the VDD and VSS pins.
81	DVSR	DVSR	Input/Output	R-channel D/A converter unit ground pin.
82	RO	RO	Input/Output	R-channel data forward output pin.
83	DVRR	DVRR	Input/Output	R-channel reference voltage pin.
84	DVDD	DVDD	Input/Output	D/A converter unit power supply pin.
85	DVRL	DVRL	Input/Output	L-channel reference voltage pin.
86	LO	LO	Input/Output	L-channel data forward output pin.
87	DVSL	DVSL	Input/Output	L-channel D/A converter unit ground pin.
88 89*	NC NC/VPP	NC NC	Input/Output Input/Output	NC pins. Normally, connect these pins to ground or leave them open.
90	/RST	RESET	Input	Device's system reset signal input pin. The device remains reset while $\overline{\text{RESET}}$ is held low and when $\overline{\text{RESET}}$ is released back high, the CD unit becomes operational and the program starts from address 0. Normally, a system reset is asserted when a voltage of 2.7V or more is applied to VDD when it is at 0V (power-on reset). Therefore, this pin must be pulled high when used for this purpose.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC802 VHiTC9457F2-1: Servo/Signal Control (TC9457F2) (4/4)

Pin No.	Port Name	Terminal Name	Input/Output	Function
91	/HOLD	HOLD	Input	This pin is used to input a signal that requests or clears the hold mode. Normally, use this pin for CD mode select signal input or battery detection signal input. There are two hold modes: clock stop mode (crystal oscillator turned off) and a wait mode (CPU stopped). These modes are entered by executing the CKSTP and WAIT instructions, respectively. The clock stop mode can be requested by a programmed input: low level detection on $\overline{\text{HOLD}}$ pin or forced execution, and can be cleared by detecting a high on the $\overline{\text{HOLD}}$ pin or a change of state in its input signal. When the CKSTP instruction is executed, the clock generator and the CPU stop operating and the device is placed in a memory backup state. During this state, the device's current consumption is reduced to 1µA or less. At the same time, the display output and CMOS output ports are automatically set low, and the Nch open-drain outputs are turned off. The wait mode is executed regardles of the input state on the $\overline{\text{HOLD}}$ pin, with the device's current consumption reduced. This mode is cleared by a change of state in the $\overline{\text{HOLD}}$ input.
92	INTR	REMO-IN	Input	External interrupt input pin. When the interrupt facility is enabled and a pulse of 1.11 to 2.22µs in duration is applied to this pin, an interrupt is generated and the program jumps to address 1. Input logic and the active edge (rise or fall) can be selected for each interrupt input. Also, the internal 8-bit time clock can be chosen for this interrupt input, in which case it is possible to count pulses or generate an interrupt at a given pulse count (address 3).
93* 94*	MXO MXI	MXO MXI	Input/Output Input/Output	Crystal oscillator pins for the controller. The oscillator clock is used as the timebase for the clock facility or as the controller's system clock. Connect a 4.5MHz or 75kHz crystal resonator to the MXO and MXI pins. Since these pins do not contain internal feedback resistors, etc, an amp resistor or output resistor must be added external to the chip. When using the clock generated by the CD unit's crystal oscillator for clocking the entire device operation, fix the MXI pin to the GND level. Oscillation is stopped by executing a CKSTP instruction. Select the crystal oscillator and control its operation by a program.
95 96	MVSS MVDD	MVSS MVDD	Input/Output Input/Output	Power supply pins. Normally, apply a voltage of 4.5 to 5.5V to VDD. In a backup state (when the CKSTP instruction executed), the device's current consumption is reduced to 1µA or less, allowing for the supply voltage to be lowered to 2.0V. The device is reset and the program starts from address 0 when a voltage of 2.7V or more is applied to this pin when it is at 0V (power-on reset).
97 98 99 100	OT1 OT2 OT3 OT4	COM1 COM2 COM3 COM4	Output Output Output Output	Common signal outputs to the LCD panel. Up to 72 segments in a matrix with S1 to S18 can be displayed. Three voltage levels MVDD, VEE (1/2 MVDD), and GND are output for 83Hz period at 2ms intervals. After a system reset and after deassertion of a clock stop instruction, the VEE voltage is output and the DISP OFF bit is set to 0 before common signals are output.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

— M E M O —

SHARP PARTS GUIDE

MODEL QT-CD250

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1. MODEL NUMBER
2. REF. No.
3. PART NO.
4. DESCRIPTION

★ MARK: SPARE PARTS-DELIVERY SECTION

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Please call Toll-Free;
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Explanation of capacitors/resistors parts codes

Capacitors

VCC ..... Ceramic type
VCK ..... Ceramic type
VCT ..... Semiconductor type
VC • • MF ..... Cylindrical type (without lead wire)
VC • • MN ..... Cylindrical type (without lead wire)
VC • • TV ..... Square type (without lead wire)
VC • • TQ ..... Square type (without lead wire)
VC • • CY ..... Square type (without lead wire)
VC • • CZ ..... Square type (without lead wire)
VC • • • • • • • • • J .. The 13th character represents capacity difference.
("J" ±5%, "K" ±10%, "M" ±20%, "N" ±30%,
"C" ±0.25 pF, "D" ±0.5 pF, "Z" +80-20%.)

If there are no indications for the electrolytic capacitors, error is ±20%.

Resistors

VRD ..... Carbon-film type
VRS ..... Carbon-film type
VRN ..... Metal-film type
VR • • MF ..... Cylindrical type (without lead wire)
VR • • MN ..... Cylindrical type (without lead wire)
VR • • TV ..... Square type (without lead wire)
VR • • TQ ..... Square type (without lead wire)
VR • • CY ..... Square type (without lead wire)
VR • • CZ ..... Square type (without lead wire)
VR • • • • • • • • • J .. The 13th character represents error.
("J" ±5%, "F" ±1%, "D" ±0.5%.)

If there are no indications for other parts, the resistors are ±5% carbon-film type.

NOTE:
Parts marked with "⚠" are important for maintaining the safety of the set.
Be sure to replace parts with specified ones for maintaining the safety and performance of the set.

QT-CD250

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
INTEGRATED CIRCUITS				
IC1	VHITA2104BN-1	J	AQ	FM/AM IF MPX.,TA2104BN
IC51	VHILC72121/-1	J	AN	Electronic Tuning,LC72121
IC101	VHIBA3311L/-1	J	AK	REC./P.B.Equalizer Amp., BA3311L
IC201	VHITA8227P/-1	J	AH	Power Amp.,TA8227P
IC202	VHITC9260P/-1	J	AN	Electronic Volume,TC9260P
IC801	VHITA2109F/-1	J	AL	Servo Pre Amp.,TA2109F
IC802	VHITC9457F2-1	J	AZ	Servo/Signal Control,TC9457F2
IC803	VHILA6541D/-1	J	AW	Focus/Tracking/Spin/Sled Driver, LA6541D
TRANSISTORS				
Q1	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q2	VSKRA102M//-1	J	AC	Digital,PNP,KRA102 M
Q201,202	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q203	VSKTA1266GR-1	J	AB	Silicon,PNP,KTA1266 GR
Q204	VSKTA1273Y/-1	J	AE	Silicon,PNP,KTA1273 Y
Q205	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q206	VSKTA1046Y/-1	J	AC	Sillicon,PNP,KTA1046 Y
Q207	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q209~212	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q351	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q801	VSKTA1266GR-1	J	AB	Silicon,PNP,KTA1266 GR
Q802	VSKTA1273Y/-1	J	AE	Silicon,PNP,KTA1273 Y
Q803	VSKRC107M//-1	J	AC	Digital,NPN,KRC107 M
Q804	VSKTA1266GR-1	J	AB	Silicon,PNP,KTA1266 GR
Q805	VSKRC107M//-1	J	AC	Digital,NPN,KRC107 M
Q806	VSKTA1273Y/-1	J	AE	Silicon,PNP,KTA1273 Y
DIODES				
D1	VHD1N4148//-1	J	AA	Silicon,1N4148
D101,102	VHD1N4148//-1	J	AA	Silicon,1N4148
D201~205	VHD1N4148//-1	J	AA	Silicon,1N4148
D651~654	VHD1N4004//-1	J	AB	Silicon,1N4004
D801~806	VHD1N4148//-1	J	AA	Silicon,1N4148
VD1,2	VHCKV1370NT-1	J	AG	Variable Capacitance,KV1370NT
VD3	VHCKV1520NT-1	J	AK	Variable Capacitance,KV1520NT
ZD201	VHEDZ5R1BSB-1	J	AC	Zener,5.1V,DZ5.1BSB
ZD202	VHEDZ7R5BSB-1	J	AB	Zener,7.5V,DZ7.5BSB
ZD203	VHEDZ2R4BSB-1	J	AB	Zener,2.4V,DZ2.4BSB
FILTERS				
CF1	RFILF0006SJZZ	J	AE	FM IF
CF3	RFILA0003SJZZ	J	AF	AM IF
CF4	RFILF0005SJZZ	J	AF	FM Detection
F1	RFILR0001SJZZ	J	AD	FM Band Pass Filter
TRANSFORMERS				
T3	RCILI0008SJZZ	J	AC	AM IF
⚠T651	RTRNP0036SJZZ	J	AQ	Power
COILS				
COR1	RCORF0005SJZZ	J	AB	Core
COR801	RCORF0005SJZZ	J	AB	Core
L1	RCILR0004SJZZ	J	AE	FM RF
L2	RCILB0015SJZZ	J	AC	FM Oscillation
L3	RCILA0011SJZZ	J	AC	AM Bar Antenna
L4	RCILB0014SJZZ	J	AC	AM Oscillation
L51	VP-DH101K0000	J	AB	100 µH,Choke
L301	RCILB0003SJZZ	J	AD	Bias Oscillation
L801	VP-DH221K0000	J	AB	220 µH,Choke
L803	VP-DH221K0000	J	AB	220 µH,Choke
L807	VP-DHR82K0000	J	AE	0.82 µH,Choke
VARIABLE CAPACITOR				
TC1	RTO-H1003SJZZ	J	AG	Trimmer
VIBRATORS				
X51	RCRSP0003SJZZ	J	AL	Crystal,4.5 MHz
X801	RCRM-0002SJZZ	J	AE	Ceramic,16.93 MHz
X802	RCRM-0003SJZZ	J	AK	Ceramic,4.19 MHz
CAPACITORS				
C1	VCCCPA1HH150J	J	AA	15 pF (CH),50V
C2	VCKYPA1HB102K	J	AA	0.001 µF,50V
C3	VCKZPA1HF103Z	J	AA	0.01 µF,50V
C5	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C6	VCCCPA1HH220J	J	AA	22 pF (CH),50V
C7,8	VCKYPA1HB102K	J	AA	0.001 µF,50V
C9	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C10	VCCUPA1HJ8R0D	J	AA	8 pF,50V
C11	VCCSPA1HL361J	J	AA	360 pF,50V
C12	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C13	RC-GZA474AF1H	J	AA	0.47 µF,50V,Electrolytic
C14	VCKZPA1HF473Z	J	AA	0.047 µF,50V
C15	RC-GZA227AF1A	J	AB	220 µF,10V,Electrolytic
C16	RC-GZA475AF1H	J	AB	4.7 µF,50V,Electrolytic
C18	VCKYTV1HB102K	J	AA	0.001 µF,50V
C19	RC-GZA225AF1H	J	AB	2.2 µF,50V,Electrolytic
C20	VCKYPA1HB331K	J	AA	330 pF,50V
C21	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C22	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C23	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C24	VCTYPA1CU104M	J	AB	0.1 µF,16V
C25	VCKZPA1HF473Z	J	AA	0.047 µF,50V
C26	VCTYPA1CU104M	J	AB	0.1 µF,16V
C27	VCKYPA1HB102K	J	AA	0.001 µF,50V
C29	VCKYPA1HB101K	J	AA	100 pF,50V
C32	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C33,34	VCKYTV1HB221K	J	AA	220 pF,50V
C51	VCCCPA1HH150J	J	AA	15 pF (CH),50V
C52	VCCCPA1HH120J	J	AA	12 pF (CH),50V
C53	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C54	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C55	RC-GZA225AF1H	J	AB	2.2 µF,50V,Electrolytic
C56	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C57,58	VCKYTV1HB101K	J	AA	100 pF,50V
C59	VCKZPA1HF103Z	J	AA	0.01 µF,50V
C60	VCKYPA1HB222K	J	AA	0.0022 µF,50V
C61	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C68	VCKYTV1HB221K	J	AA	220 pF,50V
C71,72	VCQYKA1HM223K	J	AB	0.022 µF,50V,Mylar
C73,74	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C75	VCKYPA1HB101K	J	AA	100 pF,50V
C105,106	VCKYPA1HB182K	J	AB	0.0018µF,50V
C107,108	VCKYPA1HB821K	J	AA	820 pF,50V
C109,110	VCKYPA1HB271K	J	AA	270 pF,50V
C111,112	VCKYPA1HB331K	J	AA	330 pF,50V
C113,114	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C115,116	VCQYKA1HM183K	J	AB	0.018 µF,50V,Mylar
C117,118	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C119	RC-GZA225AF1H	J	AB	2.2 µF,50V,Electrolytic
C120	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C121,122	VCKZPA1HF103Z	J	AA	0.01 µF,50V
C123	RC-GZA227AF1A	J	AB	220 µF,10V,Electrolytic
C201	RC-GZA107AF1C	J	AB	100 µF,16V,Electrolytic
C202	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C203	VCKZPA1HF103Z	J	AA	0.01 µF,50V
C204	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C205,206	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C207	RC-GZA477AF1A	J	AC	470 µF,10V,Electrolytic
C208	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C209	VCKZPA1HF103Z	J	AA	0.01 µF,50V
C210	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C211,212	VCKZPA1HF473Z	J	AA	0.047 µF,50V
C213,214	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C215,216	VCQYKA1HM104K	J	AB	0.1 µF,50V,Mylar
C217,218	VCQYKA1HM152K	J	AB	0.0015 µF,50V,Mylar
C219,220	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C221,222	VCKYPA1HB102K	J	AA	0.001 µF,50V
C223,224	RC-GZA104AF1H	J	AB	0.1 µF,50V,Electrolytic
C225	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C226	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C227	RC-GZW478AF1C	J	AF	4700 µF,16V,Electrolytic
C229~232	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C233,234	RC-GZA477AF1A	J	AC	470 µF,10V,Electrolytic
C235~238	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C239,240	VCQYKA1HM104K	J	AB	0.1 µF,50V,Mylar
C241,242	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
C243,244	VCKYPA1HB331K	J	AA	330 pF,50V
C245	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C246	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C247	RC-GZA227AF1A	J	AB	220 µF,10V,Electrolytic
C249	VCKYPA1HB101K	J	AA	100 pF,50V
C302	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C351	VCQYKA1HM222K	J	AA	0.0022 µF,50V,Mylar
C352	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C353	VCQYKA1HM562K	J	AA	0.0056 µF,50V,Mylar
C354	VCQYKA1HM223K	J	AB	0.022 µF,50V,Mylar
C651~654	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C801	VCKZPA1HF103Z	J	AA	0.01 µF,50V
C802	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C804	VCCCPA1HH2R0C	J	AA	2 pF (CH),50V
C805	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C806	RC-GZA337AF1A	J	AB	330 µF,10V,Electrolytic
C807	VCKZPA1HF473Z	J	AA	0.047 µF,50V
C810	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C813	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C814	VCKZPA1HF473Z	J	AA	0.047 µF,50V
C815	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C816	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C817	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C818	VCCSPA1HL560J	J	AA	56 pF,50V
C819,820	VCQYKA1HM104K	J	AB	0.1 µF,50V,Mylar
C821	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C822	VCKZPA1HF473Z	J	AA	0.047 µF,50V
C823	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C824,825	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C826	VCCSPA1HL470J	J	AA	47 pF,50V
C827	VCQYKA1HM153K	J	AB	0.015 µF,50V,Mylar
C828	VCKYPA1HB272K	J	AA	0.0027 µF,50V
C829	VCKYPA1HB472K	J	AB	0.0047 µF,50V
C830	VCQYKA1HM103K	J	AA	0.01 µF,50V,Mylar
C832	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C833	VCQYKA1HM333K	J	AB	0.033 µF,50V,Mylar
C834,835	VCKYPA1HB471K	J	AA	470 pF,50V
C836~839	VCQYKA1HM473K	J	AB	0.047 µF,50V,Mylar
C840	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C841,842	VCKZPA1HF473Z	J	AA	0.047 µF,50V
C843	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C844	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C845	VCKZPA1HF473Z	J	AA	0.047 µF,50V
C846	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C847,848	RC-GZA226AF1C	J	AB	22 µF,16V,Electrolytic
C849,850	VCKYPA1HB222K	J	AA	0.0022 µF,50V
C851,852	RC-GZA335AF1H	J	AB	3.3 µF,50V,Electrolytic
C853	VCKZPA1HF223Z	J	AA	0.022 µF,50V
C854	VCKYPA1HB682K	J	AB	0.0068 µF,50V
C856	VCKYPA1HB101K	J	AA	100 pF,50V
C862	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C863	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C864	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C865	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C870	VCKYTV1HB101K	J	AA	100 pF,50V
C872	VCKYTV1HB472K	J	AA	0.0047 µF,50V

RESISTORS

R1	VRD-ST2CD332J	J	AA	3.3 kohms,1/6W
R2,3	VRD-ST2CD104J	J	AA	100 kohm,1/6W
R4	VRD-ST2CD100J	J	AA	10 ohm,1/6W
R5	VRD-ST2CD223J	J	AA	22 kohms,1/6W
R6	VRD-ST2CD153J	J	AA	15 kohms,1/6W
R7	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R8	VRD-ST2CD224J	J	AA	220 kohms,1/6W
R10	VRD-ST2CD331J	J	AA	330 ohms,1/6W
R12	VRD-ST2CD100J	J	AA	10 ohm,1/6W
R13	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R14	VRS-TV2AB222J	J	AA	2.2 kohms,1/10W
R15	VRD-ST2CD393J	J	AA	39 kohms,1/6W
R16	VRD-ST2CD332J	J	AA	3.3 kohms,1/6W
R17	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R18	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R20	VRS-TV2AB471J	J	AA	470 ohms,1/10W
R51	VRD-ST2CD151J	J	AA	150 ohms,1/6W
R52	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R53	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R54	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R55	VRD-ST2CD563J	J	AA	56 kohms,1/6W
R58~62	VRD-ST2CD102J	J	AA	1 kohm,1/6W

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
R71,72	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R73,74	VRD-ST2CD332J	J	AA	3.3 kohms,1/6W
R76	VRD-ST2CD821J	J	AA	820 ohms,1/6W
R77	VRS-TV2AB332J	J	AA	3.3 kohms,1/10W
R101,102	VRD-ST2CD331J	J	AA	330 ohms,1/6W
R103,104	VRD-ST2CD123J	J	AA	12 kohms,1/6W
R105,106	VRD-ST2CD153J	J	AA	15 kohms,1/6W
R107,108	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R109,110	VRD-ST2CD121J	J	AA	120 ohms,1/6W
R113,114	VRD-ST2CD822J	J	AA	8.2 kohms,1/6W
R115~118	VRD-ST2CD392J	J	AA	3.9 kohms,1/6W
R119,120	VRD-ST2CD332J	J	AA	3.3 kohms,1/6W
R121,122	VRD-ST2CD272J	J	AA	2.7 kohms,1/6W
R123,124	VRD-ST2CD332J	J	AA	3.3 kohms,1/6W
R125	VRD-ST2CD684J	J	AA	680 kohms,1/6W
R126	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R201	VRD-ST2CD122J	J	AA	1.2 kohms,1/6W
R202	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R203	VRD-ST2CD271J	J	AA	270 ohms,1/6W
R204	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R205	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R206,207	VRD-ST2CD561J	J	AA	560 ohms,1/6W
R209,210	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R211,212	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R213	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R214~216	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R217,218	VRD-ST2CD822J	J	AA	8.2 kohms,1/6W
R219,220	VRD-ST2CD224J	J	AA	220 kohms,1/6W
R221~224	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R225	VRD-ST2CD104J	J	AA	100 kohm,1/6W
R227,228	VRD-ST2CD121J	J	AA	120 ohms,1/6W
R230	VRD-ST2EE2R7J	J	AA	2.7 ohms,1/4W
R231,232	VRD-ST2CD121J	J	AA	120 ohms,1/6W
R233,234	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R235,236	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R237,238	VRD-ST2CD272J	J	AA	2.7 kohms,1/6W
R239,240	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R241,242	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R243,244	VRD-ST2CD564J	J	AA	560 kohms,1/6W
R245,246	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
R247,248	VRD-ST2CD561J	J	AA	560 ohms,1/6W
R249	VRD-ST2CD221J	J	AA	220 ohms,1/6W
R250	VRD-ST2CD474J	J	AA	470 kohms,1/6W
R251,252	VRD-ST2CD223J	J	AA	22 kohms,1/6W
R253	VRD-ST2CD392J	J	AA	3.9 kohms,1/6W
R351	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R352	VRD-ST2CD151J	J	AA	150 ohms,1/6W
R353	VRD-ST2CD333J	J	AA	33 kohms,1/6W
R354	VRD-ST2CD4R7J	J	AA	4.7 ohms,1/6W
R455,456	VRD-ST2CD153J	J	AA	15 kohms,1/6W
R457,458	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R801	VRD-ST2EE220J	J	AA	22 ohms,1/4W
R802	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R803	VRD-ST2CD823J	J	AA	82 kohms,1/6W
R804	VRD-ST2CD683J	J	AA	68 kohms,1/6W
R805	VRD-ST2CD393J	J	AA	39 kohms,1/6W
R806	VRD-ST2CD272J	J	AA	2.7 kohms,1/6W
R807	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R808	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R811	VRD-ST2CD223J	J	AA	22 kohms,1/6W
R812	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R820	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R821	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R824,825	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R826	VRD-ST2CD224J	J	AA	220 kohms,1/6W
R827	VRD-ST2CD153J	J	AA	15 kohms,1/6W
R828	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R829	VRD-ST2CD332J	J	AA	3.3 kohms,1/6W
R830	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R831~834	VRD-ST2CD332J	J	AA	3.3 kohms,1/6W
R835,836	VRD-ST2CD271J	J	AA	270 ohms,1/6W
R837,838	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R839	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R840	VRD-ST2EE100J	J	AA	10 ohm,1/4W
R841	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
R842	VRD-ST2CD223J	J	AA	22 kohms,1/6W
R843	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R844,845	VRD-ST2CD223J	J	AA	22 kohms,1/6W
R846	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R847	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
R848	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R849	VRD-ST2CD183J	J	AA	18 kohms,1/6W

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
R850	VRD-ST2CD152J	J	AA	1.5 kohms,1/6W
R851~853	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R854	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R855	VRD-ST2CD183J	J	AA	18 kohms,1/6W
R856	VRD-ST2CD153J	J	AA	15 kohms,1/6W
R857	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R860	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R861	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R862	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R863	VRS-TV2AB182J	J	AA	1.8 kohms,1/10W
R864	VRS-TV2AB105J	J	AA	1 Mohm,1/10W
R865	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R866	VRD-ST2CD332J	J	AA	3.3 kohms,1/6W
R867~873	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R875~878	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R879	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R882~895	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R896,897	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R898~901	VRD-ST2CD473J	J	AA	47 kohms,1/6W

OTHER CIRCUITRY PARTS

BI801/CNS801	QCNWN0158SJZZ	J	AF	Connector Ass'y,8/8Pin
BI802/CNS802	QCNWN0159SJZZ	J	AD	Connector Ass'y,5/5Pin
BI803/CNS803	QCNWN0115SJZZ	J	AE	Connector Ass'y,6/6Pin
CNP101	QCNCW001DSJZZ	J	AC	Plug,4Pin
CNP201	QCNCW001CSJZZ	J	AC	Plug,3Pin
CNP602	QCNCW002CSJZZ	J	AD	Plug,3Pin
CNP801	QCNCM010DAWZZ	J		Plug,4Pin
CNP803	QCNCM932FAFZZ	J	AC	Plug,6Pin
CNS101	QCNWN0010SJZZ	J	AG	Connector Ass'y,4Pin
CNS201	QCNWN0157SJZZ	J	AC	Connector Ass'y,3Pin
CNS602	QCNWN0165SJZZ	J	AC	Connector Ass'y,3Pin
CNS801	QCNCW010DAWZZ	J		Connector Ass'y,4Pin
FW801	QCNWN0166SJZZ	J	AD	Flat Wire,12Pin
FW802	QCNWN0167SJZZ	J	AD	Flat Wire,11Pin
HPJ201	QJAKM0001SJZZ	J	AG	Jack,Headphone
LCD801	RV-LX0009SJZZ	J	AM	LCD Display
M601(240-6)	9GD192112346	J	AX	Motor with Pulley [Tape]
M701	RMOTV0409AFM1	J	AN	Motor with Gear [Sled]
M702	RMOTV0408AFM3	J	AN	Motor with Chassis [Spindle]
⚠SO651	QSOCA0001SJZZ or	J	AE	AC Inlet Socket
⚠SO651	QSOCA0005SJZZ	J	AE	AC Inlet Socket
SP201,202	RSPA10001SJ4P	J		Speaker,Woofer
SW102	QSW-S0001SJZZ	J	AD	Switch,Slide Type [Record/Playback]
SW201	QSW-S0008SJZZ	J	AG	Switch,Slide Type [Function Selector]
SW601(240-7)	9GD640101149	J		Switch,Leaf Type [Tape Main]
SW702	QSW-F9001AWZZ	J	AE	Switch,Push Type [Pickup In]
SW801	QSW-K0001SJZZ	J	AC	Switch,Key Type [Play/Pause/Tuning Up]
SW802	QSW-K0001SJZZ	J	AC	Switch,Key Type [Stop/Tuning Down]
SW803	QSW-K0001SJZZ	J	AC	Switch,Key Type [Repeat/Band]
SW804	QSW-K0001SJZZ	J	AC	Switch,Key Type [Tuner/Memory]
SW805	QSW-K0001SJZZ	J	AC	Switch,Key Type [Cue/Preset Up]
SW806	QSW-K0001SJZZ	J	AC	Switch,Key Type [Review/Preset Down]
SW807	QSW-K0001SJZZ	J	AC	Switch,Key Type [Volume Up]
SW808	QSW-K0001SJZZ	J	AC	Switch,Key Type [Volume Down]
SW809	QSW-K0001SJZZ	J	AC	Switch,Key Type [X-BASS]
SW810	QSW-F0001SJZZ	J	AD	Switch,Leaf [CD Lid]
UN801	VHLN64H380A-1	J	AK	Remote Sensor,N64H380A

CD MECHANISM PARTS

301	NGERH0586AFZZ	J	AC	Gear,Middle
302	NGERH0587AFZZ	J	AC	Gear,Drive
303	MLEVP1054AFZZ	J	AC	Rail,Guide
304	NSFTM0291AFFW	J	AD	Shaft,Guide
305	PCUSG0613AFZZ	J	AC	Cushion
⚠306	DCTRH8003SJ01	J	BC	Pickup Unit Ass'y
701	XBSSD26P06000	J	AA	Screw,ø2.6×6mm
702	XHBSD20P05000	J	AA	Screw,ø2×5mm
703	XBBSD20P03000	J	AA	Screw,ø2×3mm
704	LX-WZ1070AFZZ	J	AA	Washer,ø1.5×ø3.8×0.25mm
M701	RMOTV0409AFM1	J	AN	Motor with Gear [Sled]
M702	RMOTV0408AFM3	J	AN	Motor with Chassis [Spindle]
SW702	QSW-F9001AWZZ	J	AE	Switch,Push Type [Pickup In]

CABINET PARTS

201	GCABA1045SJM1	J	AR	Front Cabinet
202	GCABB1045SJSA	J	AR	Top Cabinet
203	GFTAT1004SJSB	J	AD	CD Lid
204	CHLDM1001SJ01	J	AG	Stabilizer Ass'y
204- 1	PMAGF0002AWZZ	J	AE	Magnet
204- 2	LHLDM1001SJZZ	J	AC	Holder,Stabilizer
204- 3	PSHEZ0003SJZZ	J	AG	Sheet,Stabilizer Holder
205	GFTAB1009SJSB	J	AD	Battery Compartment Lid,Rear
206	GFTAC0004SJSB	J		Cassette Holder
207	GCOVA1002SJSA	J	AB	Cover,Remote Sensor
208	HPNLC1052SJSA	J	AB	Panel,Control
209	HDECQ0038SJSA	J	AD	Ring,Speaker
210	LHLDZ1028SJZZ	J	AC	Holder,CD Control PWB
211	JBTN-0013SJSB	J	AB	Button,Pause
212	JBTN-0014SJSB	J	AB	Button,Stop/Eject
213	JBTN-0015SJSB	J	AB	Button,Fast Forward
214	JBTN-0016SJSB	J	AB	Button,Rewind
215	JBTN-0017SJSB	J	AB	Button,Play
216	JBTN-0018SJSB	J	AB	Button,Record
217	JHNDP1003SJSB	J	AG	Handle
218	JKNBK0026SJSA	J	AB	Knob,X-BASS/Volume
219	JKNBZ0043SJSA	J	AD	Knob,Function
220	JKNBZ0044SJSA	J	AB	Button,CD Stop
221	JKNBZ0045SJSA	J	AC	Button,CD Play/Pause
222	CGERH0001SJ01	J	AF	Damper Gear Ass'y
223	LANGK0001SJFW	J	AC	Bracket,Button
224	LANGZ0004SJZA	J		Bracket,Battery
225	LHLDA1001SJZZ	J	AC	Holder,AM Bar Antenna
226	LHLDW1001SJZZ	J	AD	Nylon Band
227	RCORF0002SJZZ	J	AC	Core
228	LHLDZ1027SJZZ	J	AB	Holder,LCD
229	MSPRC0004SJFN	J	AB	Spring,Battery,-
230	MSPRC0005SJFD	J	AB	Spring,Battery,+/-
231	MSPRD0002SJFD	J	AC	Spring,CD Lid
232	MSPRD0009SJFD	J	AB	Spring,Cassette Holder Up
233	MSPRZ0002SJFD	J	AB	Spring,Rod Antenna
234	LHLDZ1029SJZZ	J	AD	Holder,CD Switch PWB
235	PGUMS0001SJZZ	J	AB	Cushion,CD Lid
236	PSLDM3003SJFW	J	AB	Bracket,Shield
237	QANTR0003SJZZ	J	AL	Rod Antenna
238	MSPRP0002SJFW	J	AC	Bracket,Record
239	HDECQ0039SJSA	J	AD	Decoration Plate,LCD Display
240	CMECB0003SJ01	J	AZ	Tape Mechanism Ass'y
240- 1	9GD192104309	J	AR	Pinch Roller Arm Ass'y
240- 2	9GD19210703	J	AE	Belt,REW/FF
240- 3	9GD19210938	J		Belt,Main
240- 4	9GD62140116	J	AT	Head,Record/Playback
240- 5	9GD62071008	J	AQ	Head,Erase
240- 5	9GD62091010	J	AM	Head,Erase
240- 6(M601)	9GD192112346	J	AX	Motor with Pulley [Tape]
240- 7(SW601)	9GD640101149	J		Switch,Leaf Type [Tape Main]
241	MSPRC0003SJFE	J	AF	Spring,Battery,-
242	PRDAR0029SJZZ	J	AC	Heat Sink,Q206
243	PRDAR0030SJZZ	J		Heat Sink,IC201
244	GFTAB1010SJSA	J	AD	Battery Compartment Lid,Bottom
245	QCNWN0222SJZZ	J		Lead Wire with Lug
601	XUBSD30P18000	J		Screw,ø3×18mm
602	XUBSD25P10000	J	AB	Screw,ø2.5×10mm
603	XUPSD25P08000	J	AB	Screw,ø2.5×8mm
604	XUBSD30P10000	J	AA	Screw,ø3×10mm
605	XUBSD30P12000	J	AA	Screw,ø3×12mm
606	XUPSD25P08000	J	AB	Screw,ø2.5×8mm
607	XWHSD28-08120	J	AB	Washer,ø2.8×ø12×0.8mm
610	XHPSD20P03000	J	AA	Screw,ø2×3mm

PACKING PARTS (For Central America)

	SPAKA0036SJZZ	J	AG	Packing Add.,Left/Right
	SPAKC0112SJZZ	J		Packing Case
	SPAKZ0013SJZZ	J	AB	Top Pad,Packing Case
	SSAKH0001SJZZ	J	AC	Polyethylene Bag,Unit
	SSAKK0002SJZZ	J	AC	Polyethylene Bag, AC Power Supply Cord
	TLABR1098SJZZ	J		Label,Bar Code,Packing Case
	TLABZ0015SJZZ	J	AC	Label,VJ No.,Packing Case

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION

ACCESSORIES

⚠	QACCU0001SJ00	J	AR	AC Power Supply Cord
	TINSE0040SJZZ	J	AC	Operation Manual
	TLABZ SJZZ	J		Label,Feature
	RRMCG0023SJSA	J	AU	Remoto Control
		J		Battery Lid,Remoto Control

P.W.B. ASSEMBLY (Not Replacement Item)

PWB-A1~7	DCEK-0008SJ03	J	—	Main/CD Control/Power/Switch/ Terminal A/Terminal B/Washer (Combined Ass'y)
PWB-B	QPWBF3895AFZZ	J	AC	CD Motor (PWB Only)

OTHER SERVICE PART

	UDSKA0004AFZZ	J	AZ	CD Pickup Lens Cleaner

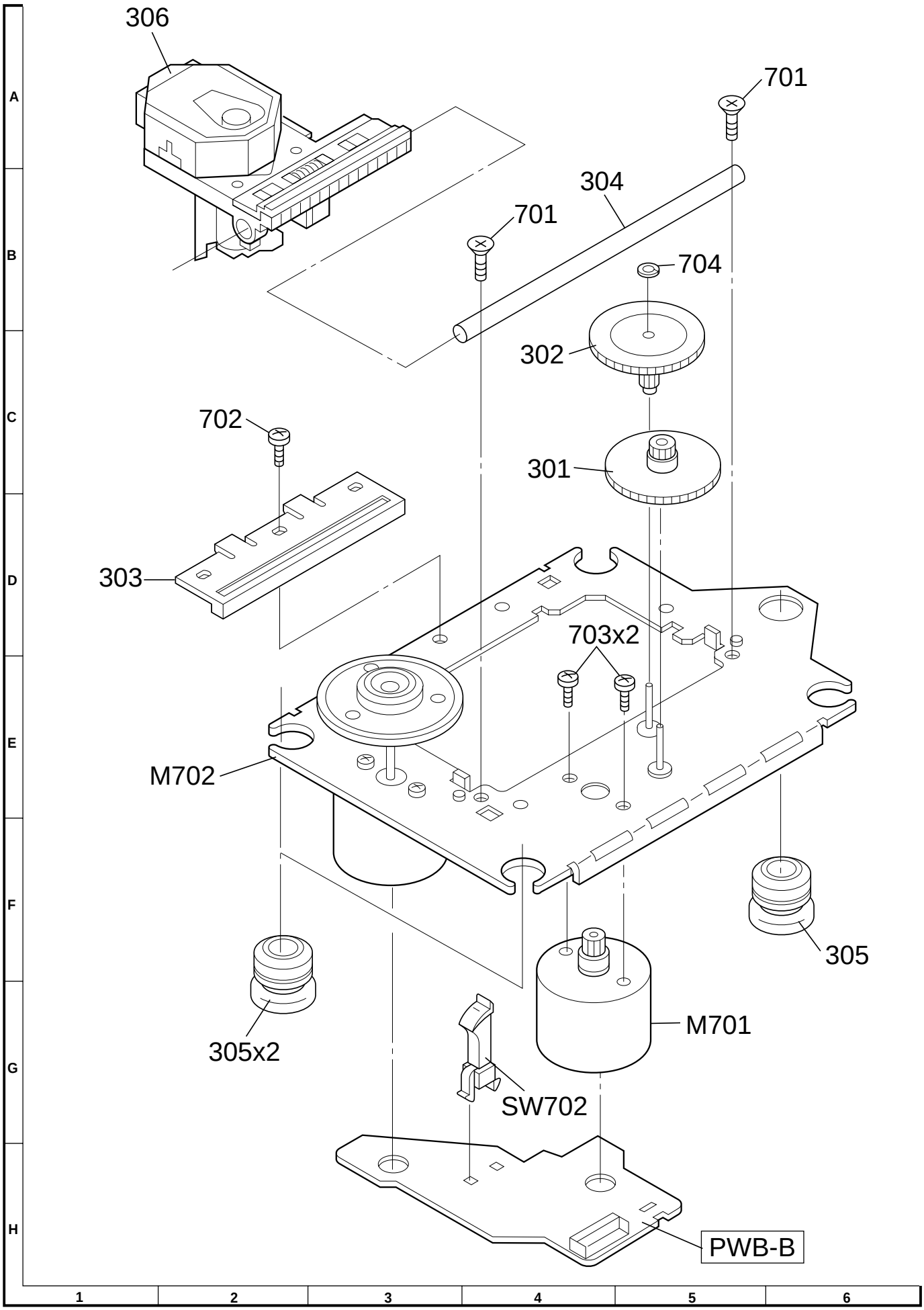
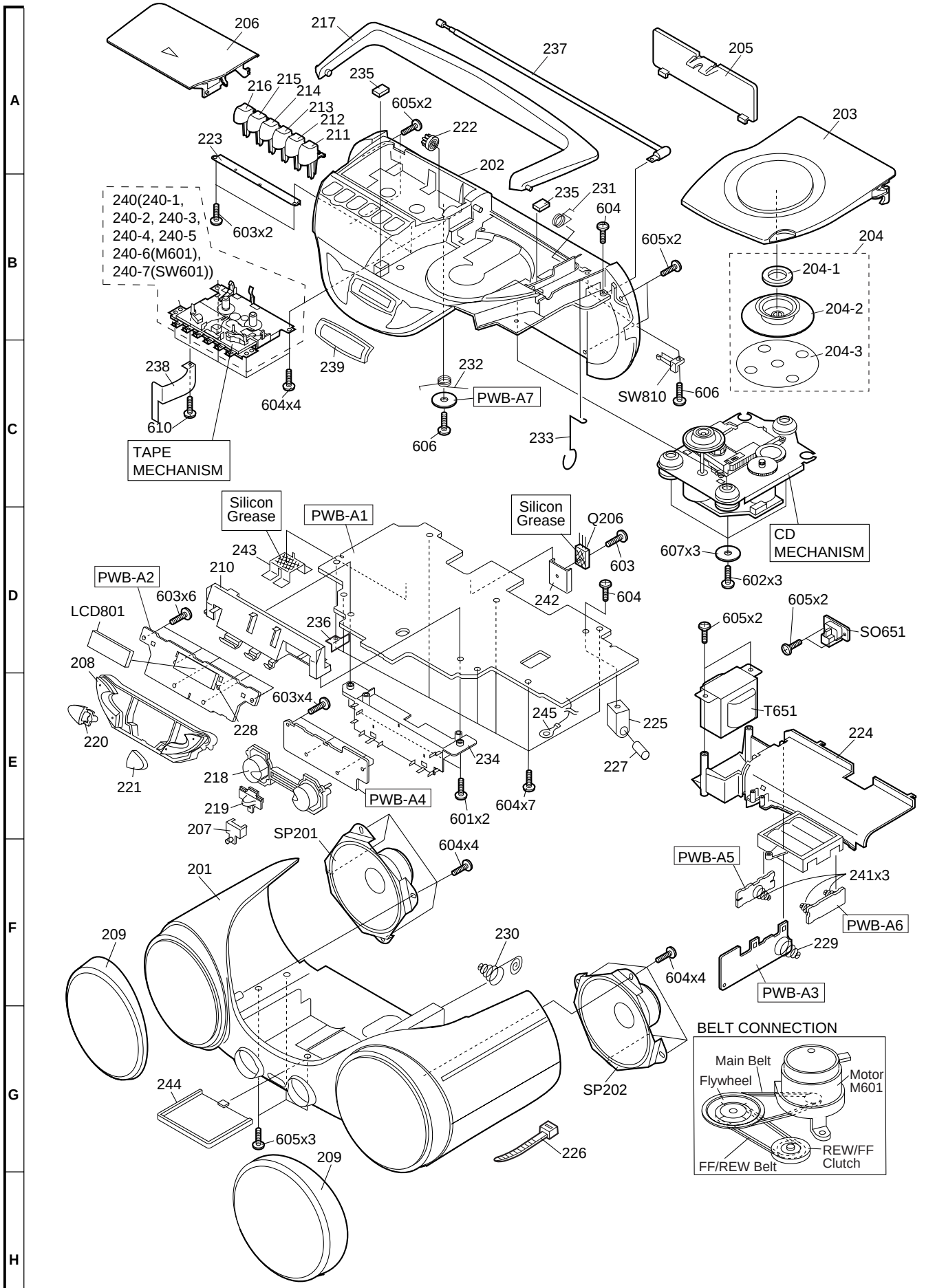


Figure 5 CD MECHANISM EXPLODED VIEW



Note: Only the unit and consumale parts are supplied as parts supply for the Tape mechanism.

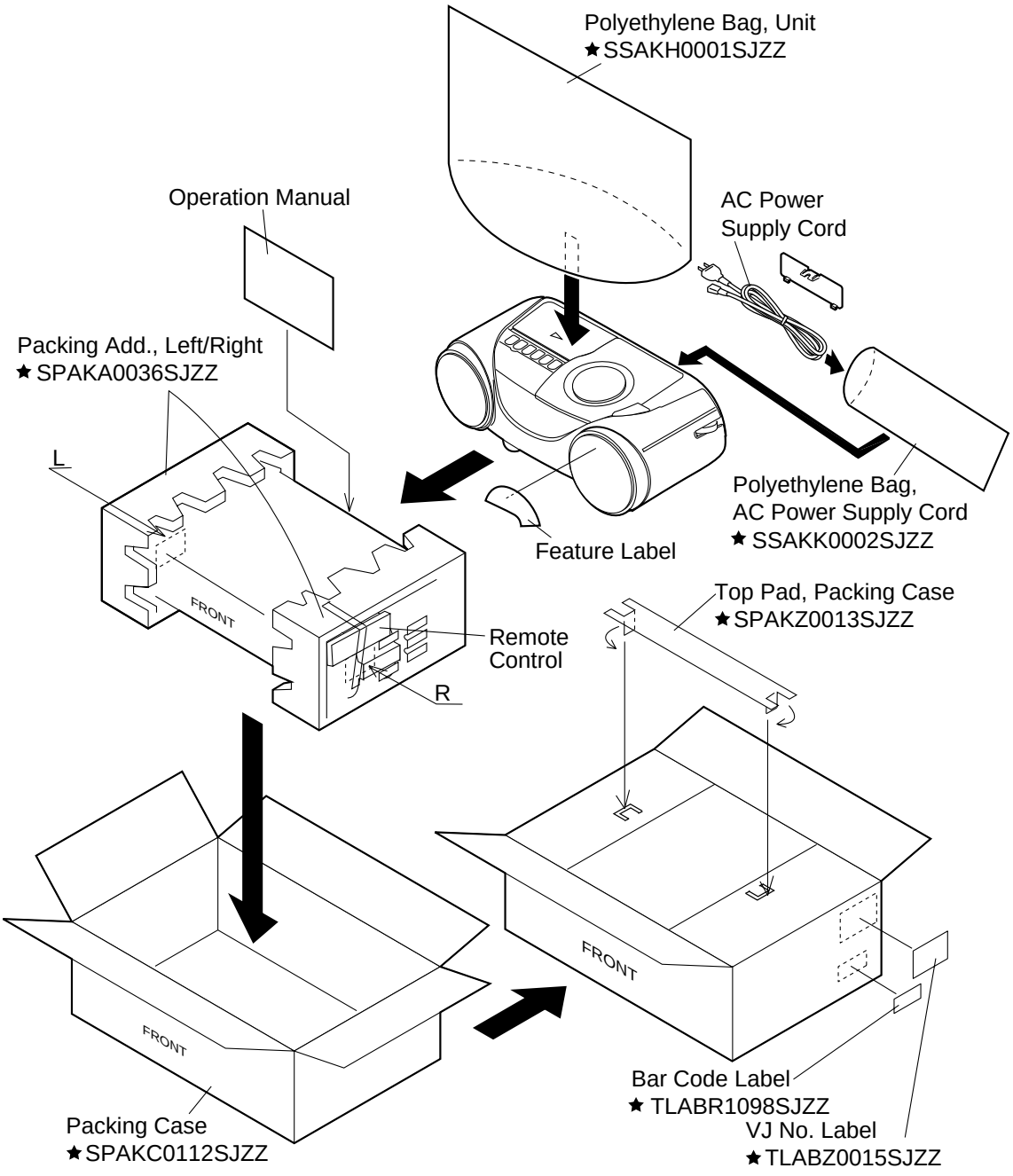
Figure 6 CABINET EXPLODED VIEW

QT-CD250

PACKING OF THE SET (FOR U.S.A ONLY)

• Setting position of switches and knobs

Tape Mechanism Control	STOP STATE
FUNCTION SELECTOR	OFF/TAPE



★ : Not Replacement Item

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